

B.C. LOWER MAINLAND EDITION

JULY 1991

VOL. 4 NO. 7

The COMPUTER PAPER

WESTERN CANADA'S COMPUTER INFORMATION SOURCE

NEWS • FEATURES • REVIEWS • EVENTS

IBM & COMPATIBLES • UNIX • APPLE • COMMODORE • ATARI



FREE

database

How to choose a custom
database developer

music

Getting started with
computer music & MIDI

accounting

Choose the best accounting
program for your Mac or PC

Multimedia

Market your business
with multimedia

Friendlyware COMPUTERS

Serving B.C. Since '83

NEW LOCATION: KINGSWAY AT RUPERT

#7-3003 Kingsway, Vancouver V6R 5J6 437-3113

Want to eliminate tedious research?

Suppose you're writing a term paper: begin by searching the millions of facts in *Guinness Electronic Encyclopedia* and selecting just the ones you need. Transfer them into the paper you're writing in Q&A's powerful word processor and then make the finished product look better than all the others with the super easy-to-use desktop publishing program *Publiah 3D*. With Magewave's new **HEADSTART COMPUTERS** (AT or 386SX models), now on display at Friendlyware, you get simply the best computer package available today. It has 60 Mhz Hard Drive comes loaded with 22 great commercial software programs. Its built-in CD-ROM player can play your favorite music while you work in older programs. There's also paper full VGA Graphics, 2480 Base Modem, 2 Mb RAM, and a mouse. And to complete your package, we are including a RAVEN 9101 dot matrix printer and the Perfect Magic Starter Kit (disk, power bar, mouse pad, etc.—no equivalent credit). We fully set-up and test every system we sell and then spend about two hours teaching you how to use what you've bought. Come and see it today. It's the perfect family computer.

Prices include RAVEN 9101 Printer, Mouse, & the Perfect Magic Starter Kit
HEADSTART 500CD PACKAGE (386SX, 2 Mb RAM) \$2195
HEADSTART 500CD GME (1 Mb RAM, 40 Mb HDD) \$2395

486 ASX

What's that, you ask? Computing power without compromise. If you've been thinking a 486 is out of your price range, then consider this. When ALR specialized their "Just upgrade the CPU, when you need more power" approach to computers, obsolescence almost became obsolete. ALR's 486/ASX uses the new 486-SX chip (the same as the full 486 without the built-in math coprocessor), yet it allows you to plug in an upgrade module when you need more power. Forwarding is an authorized ALR Refisher—so talk to us if you think you'll need more power, now or in the future. We'll recommend the right computer for your needs.

Powerflex Makes the 486 Affordable. \$2995

LAPTOPS

Bordwell 310 (286, 1 Mb RAM, 40 Mb HDD) \$1249
 Bordwell 19107A (286, 1 Mb RAM, VGA, 40 Mb HDD) \$2195
 Lutra 178X (2 Mb RAM, 20 Mhz, VGA, 40 Mb HDD) \$2295
 Quaker 1220SX (4 Mhz, 1 Mb RAM, VGA, 40 Mb HDD) \$2195

NOTEBOOKS

ALR Venture SX (VGA, 20 Mb HDD) \$2999
 Rempage SX (20 Mb HDD, VGA, Software, Carrying Case) \$2995
 Ranyo 286 (1 Mb RAM, VGA, 20 Mb HDD) \$2499
 Ranyo 386SX (1 Mb RAM, VGA, 20 Mb HDD) \$2999
 TI TransMate 3000 (20 Mhz 386SX, VGA, 20 Mb HDD) \$3499
 (TransMate 2000 with 40 Mb hard drive is now available at Friendlyware.)

Call for latest price reductions on the whole lot of Comos 386SX, DX, and 486s.
 We have 1100+ books for DOS programs, 1500 games and 700 applications programs.



**CALL
437-3113**

IRRESISTIBLE!

These aren't specials, they're our everyday prices on hundreds of computer books!

On Hand Our Price	On Hand Our Price
On Hand of Good for Windows \$14.95	\$19.95
Network Word 5.5-Quick Reference \$14.95	\$19.95
Mastering Access/4.0 \$14.95	\$19.95
Using Quattro Pro 3 \$14.95	\$19.95
10 Minute Guide to Personal Graphics 3.1 \$14.95	\$19.95
Dating Microsoft Windows 2nd Edition \$14.95	\$19.95
Using WordPerfect 5.1 \$14.95	\$19.95
On Hand of Personal Computing \$14.95	\$19.95
Inside Corel Draw Version 3.0 \$14.95	\$19.95
Quattro Pro 5-Quick Reference \$14.95	\$19.95



**Book
arehouse**
BOOKS AT IRRESISTIBLE PRICES

BRANDON 7 510 N. Broadway Vancouver \$14.95
 RICHMOND 1432 Pilsbury St. Vancouver \$14.95
 LICHMOND 4540 Hwy. 3 Rd. Richmond \$14.95
 VICTORIA 1430 Government St. Victoria \$14.95

OPEN TO 10:00 PM SEVEN DAYS A WEEK and the coffee is always on us!

UPGRADE YOUR BABY!

BEFORE...

The quick black text jumped from the last page.



AFTER...

The quick black text jumped from the 99th page

**The Hewlett Packard Series II
Laser Printer Goes Postscript.
Only \$599.00**

Includes Postscript Cartridge and 200 memory card.

- The original 100% compatible Postscript language window controller.
- The 100% of original power memory is optional (1500).
- Provides 10 fully-usable memory options and works with Windows/3.11a.
- Type 1 font (Gothic/TrueType) font options. Optional screen resolution.
- Works with the Postscript 3.0 driver that runs with various applications that support Postscript output.
- Buy in one. There are just four other laser applications.
- Lifetime warranty.



PACIFIC
800-754-5575

CALCON TELEPHONE
261-6477

Reliable 486 33MHz is here!

ISA & EISA

Being used by BC Hydro, TRIUMF,
Westcoast Energy, etc.

SONY CD-ROM SPECIAL

**Internal 550MB
\$659**



SONY OPTICAL REWRITABLE

**External 650MB
\$5999**



**CD-ROM
Package
\$2660**

MT3660X-16, 1MB 40MB Hard Disk, VGA,
Colour 1024 x 768 Monitor, SONY Internal
CD-ROM, World Atlas, Encyclopaedia, Games

Premium MULTITERM Computers

**MT366/12
\$1130**

**MT366SX/16
\$1299**

**MT366/25
\$1520**

**MT366/33
\$1755**

**MT486/25
\$2997**

**MT486/33
\$3381**

**MT486/33EISA
\$4181**

Corporate MULTITERM users:
BC Hydro, Mtel, Triumf, Westcoast Energy, etc.

Upgrades:

1024 x 768 256K 14" VGA color w/Paradise card \$400
Additional 1MB SMD Extra floppy 50¢
SMD Hard Disk (1MB, 20MB \$245, 20MB \$265,
20MB-E \$1995, 60MB-E \$2445)

FREE quote valid
with the purchase of
any new Multiterm
Vaporware system.

All MULTITERM Computers come with + 40MB 25ms voice cache disk + 1MB
RAM (4MB for MT486) + 2 serial, 1 parallel, 1 gameport + 14" Monochrome
Monitor + 101 Japanese Alps click key keyboard + 1 floppy drive or drive + clock & calendar + MS-DOS 4.01 + Warranty - 5 years labour, 2 years parts, 1
year parts & labour on monitor

Affordable BYTEWELL Computers

**BW366/12
\$894**

**BW366SX/16
\$1190**

**BW366/25
\$1326**

**BW366/33
\$1506**

**BW486/25
\$2621**

**BW486/33
\$2978**

**BW486/33EISA
\$3950**

Upgrades:

1024 x 768 256K 14" VGA color w/Paradise card \$400
SMD 400 4185 41 14" VGA colour video \$200
Additional 1MB SMD Extra floppy 50¢
SMD Hard Disk (1MB, 20MB \$245, 20MB \$265,
20MB-E \$1995, 60MB-E \$2445)

All BYTEWELL Computers come with + 40MB 25ms voice cache disk + 1MB RAM
(4MB for BW486) + 2 serial, 1 parallel, 1 gameport + 14" Monochrome Monitor + 101
Japanese Alps click key keyboard + 1 floppy drive or drive + clock & calendar +
MS-DOS 4.01 + Warranty - 2 years labour, 1 year parts, 1 year parts & labour on
monitor

PRICES SUBJECT TO CHANGE WITHOUT NOTICE

NOVELL DISKLESS 3 USER SYSTEM \$4728



286 Novell



386 12MHz



486 12MHz



WE ARE DEDICATED TO NETWORK SOLUTIONS

DPE COMPUTERS (Since 1983)

376 Hopper St., Vancouver, B.C. V6B 2W1
Tel: 604-683-7587 Fax: 604-683-8210

Multiterm is a registered trademark of DPE Electronics Canada Ltd.

SEE OUR NETWORKING AD
PAGE 73

From the Editor



By the time you read this, I should be on business in sunny New Mexico. We put this one on remote control, pushed the "Publish" button on Clarity out of the office. C&E, if it only were possible, leaves day computers and, by that proof, on the machine we still have jobs.

Multimedia

The month we have covered a variety of topics, with multimedia being the latest buzz-word. Check out our coverage of that exciting area. We also got Dan Wagner to have a look at Super Videolite Windows 3.0, a new wave of multimedia hardware and software combination.

Customizing a Database for Your Business

Getting your business in two smoothly run programs is a real problem. Often off-the-shelf packages don't fit the way your business works. The solution often is to get a custom database system that customizes the procedures specific to your business, including, customer tracking and invoicing. This month, George Sklar gives us some suggestions for getting the most for your money when shopping for a database customized to solve your problems.

Accounting Software

We also have a survey of accounting products for small business.

Music Software

A rapidly growing area of computer use is in the field of music. Computers and the new electronic synthesis have opened up new possibilities for people wanting to learn about music.

Check out the article on the best software for beginners.

Enjoy the issues.

Kirt Singh Khosla

Kirt Singh Khosla
Editor/Publisher

Editorial Schedule

(C&E Editors Please call for Article & Editorial Schedule.)

Issue	Topic	Copy	Construction	Delivery
AUG 91	Networking, Remote Office Computers	July 16	July 17	Aug 2
SEPT 91	Educators & Training, Point-of-Sale	Aug 12	Aug 14	Aug 29
OCT 91	Word Processing, Windows	Sept 16	Sept 16	Oct 4
Nov 91	Units Workstations, Hard Drives	Oct 14	Oct 16	Nov 1
Dec 91	Games, The Best of 1991, Printers	Nov 11	Nov 13	Nov 20

Contents

B.C. Edition • July 1991

Features

Multimedia—Setting Video	32
Following video, compression, framegrabbing and more. By George Sklar	
Multimedia—A Glossary of Terms	32
Control Video and audio framegrabbers shared. By George Sklar	
Profile: Imagination	40
An interview with multimedia expert Steve Goldbach. By David Davis	
Custom Software Development	42
When software development software goes wrong. By George Sklar	
Intro To Accounting	45
A guide to writing up an accounting system. By Dan Wilson	
MIDI for the beginner	49
Acoustic connection, get high PC-MIDI is an easy. By George Sklar	
Quest for MIDI	49
In search of mythical MIDI programs of them all. By George Sklar	

Articles

Your First Computer	50
Dear Robert... Part III, a letter to a friend. By Mike Smith	
How-to: PC-Fax	58
Tricks and tips for getting the best-looking faxes. By Stephen Sklar	

Reviews

Super Video Windows	54
Digital video in a standard 80/88 for your PC. By David Weger	
Addition and Animation Works	58
Two Mac solutions which don't cut it. By Larry Deibel	
EMAGE 10 Runtime	64
Adrian-Tan brings EMAGE back to the Mac. By George Sklar	
Backup Light	67
The price is right, but is it right for accounting? By George Sklar	
Great Hairs Accounting for the Mac	68
Here is a cheap home system. By Michael Sklar	
Headstart 20000	68
A computer with a CD-ROM and how many programs? By George Sklar	
Desert Storm on CD-ROM	72
A CD full of...well, you decide. By George Sklar	

Departments

Mailbox	5	IBM World	13
Letters to the Editors	6	Networks	26
What's New	7	Telecom	26
Newsbytes	9	Trends	27
Apple	9	Unix	28
Atari	13	Index of Advertisers	74
Canadian News	13	Computer Calendar	64
General	13	Computer Classified	70

At Campus Computers We Did Our Homework!!

Epson LX-510 24 pin Printer \$298	Epson LX-810 9 pin Printer \$188	Fujitsu DL-800 24 pin Printer \$288
Samtron SC-44IV VGA Color Monitor \$248	400dpi Hand Scanner w/OES Software \$138	Math Co-processors Best Price in Town.

**CAMPUS
COMPUTERS**

2288 Mainway, Suite 100, Mississauga, Ont. L4X 1V7
Tel: (416) 675-1100, (416) 675-1101, (416) 675-1102
Fax: (416) 675-1103

New Store
16141 King George Hwy
Surrey, BC V3T 2E3
Tel: (604) 886-0000 Fax: (604) 886-0001

Masthead

Publisher / Editor

John Singh/Media

Assistant Editor

Cynthia Connell

Newsletters / Contributing Editors

David Hirsch, Jason Lindgren, David Markovitz, John McManis, Alan and Barbara Robinson, Steve Goss, Peter Valdes, Don Vukobrat, Kenneth Fennell, Paul Carter, Jerry McManis, Bob Cantano, Norman Waples, Bill Tschirner and David Baskin

Contributing Writers

George Barlow, Mike Baskin, Gary DeWitt, Frank Gault, Gordon Gray, Norman Hirsch, Nelson Hunt, George Cook, Daniel Hargis, Don Wilson

Proofreader

Scott Tabor

Cover Art

Cynthia Connell

National Ad Sales

John Shaw (416) 759-0000

B.C. Ad Sales

Paul Singh (604) 685-1000

Alberta Ad Sales

Priscilla Nieland (403) 943-0707

Marketing Ad Sales

Laurence Nieland (416) 545-7000

Production

Cynthia Connell, Albert Galt

Office Manager

Sharon Kay Gault

Accountant

Sharon Ryan

Distribution

Sam Kemp & Co., Mississauga, Ontario

Printer

Transcontinental West Press

Subscriptions

The Computer Paper is published weekly. If you would like the Computer Paper mailed directly to your home, please send a cheque for \$24.95 to Sam & Sue, 3001 161 Ave., Vancouver, B.C. V6B 1Y2. Telephone (604) 713-1000. This address including and handling cost \$1.00 in US Funds. American subscriptions please send \$40 in US Funds. Send no money now! Send \$25 Canadian. Visa & Mastercard, Box 2, July, 1981

The Computer Paper, Western Canada's Computer Information Source, is published by Canada Computer Magazine. All rights reserved. Reproduction without prior written permission of the Publisher is strictly prohibited.

HEAD OFFICE - BRITISH COLUMBIA

Canada Computer Paper Inc.

3001 161 Ave. S.E., Vancouver, B.C. V6B 1Y2

Tel: (604) 713-1000, Fax: (604) 713-1000

800 Inquirer (toll-free) (416) 713-1000

Circulation: 90,000

AUSTRIA OFFICE

Wien 100, 114 1010, Calgary Alberta Tel: 404

Tel: (403) 555-1775, Fax: (403) 555-5555

Calgary Tel: (403) 458-0504

Circulation: 50,000

SAUVIGNON OFFICE

1150 Hollis Ave. Winnipeg, Man. R3B 5K6

Tel: (204) 948-7000, Fax: (204) 948-7100

Circulation: 25,000

2nd Class Postage Reg. Number T718

Printed in Canada (500) 240-0000



COMPUTER EMPIRE

CSM MANAGEMENT & CONSULTING INC.

486 System 25MHz

- 12MB Secondary Cache
- 486SX 486SX + 1.2MB Floppy
- 80486 Hard Disk, 15MB
- VGA 1024 x 768 14" Monitor 20MB
- 16-bit VGA Card 8100
- Enhanced Keyboard

\$2988
14" Mono Monitor

Leave to us \$2988/month

WHY SHOULDN'T YOU BUY FROM US?

- We carry out all our suppliers' products
- Credit terms available
- Free rental service available
- Professional after sales technical advice
- 8000000000
- 1 year/365 day/24 hours warranty

JOB OPENINGS

- Experienced salesperson/representative
- Computer sales experience
- Tel: 416-713-1000

AT 286 System - 16MHz

- 286 286 (286, 16, 486)
- 1.2MB Floppy
- 486SX Hard Disk, 15MB
- 80486 Hard Disk, 15MB
- 16-bit VGA card 8100
- Enhanced Keyboard

\$1188
14" Mono Monitor

Leave to us \$1188/month

Computer Rentals

- XT System 640K/2MB
- AT System 640K/2MB
- 800 System 640K/2MB

(Ask for monthly discount rate)

OFFICIAL DEALER

- 8000000000
- 1 year/365 day/24 hours warranty
- 8000000000
- 1 year/365 day/24 hours warranty

(Ask for monthly discount rate)



DEMO CLEARANCE SALE

All Demo Units Must Go.

TRAINING TUTOR

- APPLICATION SET UP
- WordPerfect, dBase, Microsoft, dBase, Lotus
- CALL 640-3281

TECHNICAL SPECIAL

- Hard Disk \$20
- Floppy Drives \$20
- AT Motherboard \$40

386 System 33MHz

- 386 386 (386, 33, 486)
- 1.2MB Floppy
- 80486 Hard Disk, 15MB
- 80486 Hard Disk, 15MB
- 16-bit VGA card 8100
- Enhanced Keyboard

\$1748
14" Mono Monitor

Leave to us \$1748/month

NOVELL NETWORKING

- 8000000000
- 1 year/365 day/24 hours warranty
- 8000000000
- 1 year/365 day/24 hours warranty

(Ask for monthly discount rate)

386 System 25MHz

- 386 386 (386, 25, 486)
- 1.2MB Floppy
- 80486 Hard Disk, 15MB
- 80486 Hard Disk, 15MB
- 16-bit VGA card 8100
- Enhanced Keyboard

\$1548
14" Mono Monitor

Leave to us \$1548/month

386 System 16MHz

- 386 386 (386, 16, 486)
- 1.2MB Floppy
- 80486 Hard Disk, 15MB
- 80486 Hard Disk, 15MB
- 16-bit VGA card 8100
- Enhanced Keyboard

\$1278
14" Mono Monitor

Leave to us \$1278/month

EXTERNAL DRIVES

BEST VALUE

PS/2
PC AT
Laptop
Apple

No
interface
card
required

\$59.00

IMPAQ
PC

281-1800
Imaging Technology Inc.
Canadian Distributors

Get A Job

With *Worknet High Tech '91* just recently out the door, Revolution Business Press of Bellevue, WA, has released *Northeast Computer Job 1991*, a 464-page employment guide. It catalogs existing vacancies as well as salary ranges by province/state. They also have about 100 resumes. "I used a survey that solicited more than 100 U.S. and more prominent to about the current economic state in Canada. (We wanted to see where the money took place before we did January 1st.) The greatest place in the Northeast Triangle was in Washington (no surprise there), but N.Y. and Alberta are not far behind in terms of salary. Most would just lower the rates."

Contact: Joe Gifford at Career Specialist at Revlon Inc. Business Press, (206) 422-9144.

LAIR Expo '91 in Toronto

The second annual national trade show focusing on Local and Wide Area Networks (LAN/WAN) will be held at St. Lawrence Market/Northern Toronto August 14-15. Last year's show was an unqualified success and this year promises more of the same.

Contact: Only/Link, Event Coordinator at (905) 440-1183.



New Products from A-T

Adaptive-Tech has announced Framework IV (Integrated decision support software), dBASE IV for IBM UNIX, and dBASE IV Server Edition for Microsoft SQL Server.

The new version of Adaptive-Tech's decision support software, Framework IV combines seven business productivity applications into one program, such as spreadsheets, databases, word processing, graphics, databases, outlining, electronic mail and telecommunications simultaneously in separate windows on the PC screen.

Enhancements in Framework IV include proportional font spacing, WYSIWYG Page Preview for dBase-Paradox-compatible printers, live access to dBASE files, and sophisticated graphics capabilities.

Framework runs on IBM PCs and 100% compatibles, and PS/1.

Also announced in June was dBASE IV for IBM UNIX. According to the company, this product offers dBASE IV capabilities with the multi-user, multi-making and security advantages of UNIX.

And finally, on June 19th at PC Expo in New York, Adaptive-Tech announced dBASE IV Server Edition for Microsoft SQL Server, which brings the power of dBASE IV to the client/server environment. With all the capabilities of dBASE IV 1.1, it also offers dBASE IV to operate as a client to reduce desktop screens.

Contact: Adaptive-Tech Canada, (800) 354-1996, (416) 491-0000 ext. 200, (416) 491-1000.

Portable Data Receiver for users of portable computers

Wireless communications between computers has long been an area of increased activity recently with the advent of products like LAWIN (Local Area Wireless Network) and the data transfer capability of the new Hewlett Packard's HP 1662K printer. Motorola's DataCable has announced a new R2122 compatible device called the DataCable, a software-driven interface between the system which allows communication in a portable computer, allows the data to be sent over radio and update a database, or update a spreadsheet. The DataCable, which is a 3.5-inch disk and a separate a paper. Motorola is targeting the same group who want early access to cellular phones to pick up on this technology, particularly in the areas of agents, travelling executives and other people.

Contact: Pat McIntosh, Engineer, Motorola, (416) 491-1000.

New Interim Notebook

Interim Computer has introduced the appearance of the Interim Interim notebook computer with the arrival of the Interim XL 2000 Notebook Computer. The XL 2000 comes with a 2000 or 4000 MHz Dual, optional clocking system, and takes 1 or 4 standard 1 Meg 384M to upgrade the RAM.

Contact: Interim Inc., Ontario Computers, (905) 875-7558.

English/Japanese Translation

Apply now! "The Translator," Gabel's new file-based software uses a system translator system with 3,000 grammatical rules and a 25,000-word dictionary.

Contact: George Gabel, (508) 521-4488.

Hot Notebooks! Lowest Prices!

SHARP

PC 6320



\$2295

NEC
UltraLite™



\$1095

- Even Tempo LX 1632 (486) includes Free Wireless mouse & case.....\$3495
- Leading Edge 1632 286.....\$2795
- NEC UltraLite 386.....\$2399
- Sharp PC-6341 486.....\$4295
- Sharp PC-6341 386.....\$4195
- Toshiba T2000S 486.....\$3819
- Canon EX-100 Printer.....\$4495
- Kodak Printers L200 Printer.....\$5179

*After \$200 rebate from Govt.

All systems from
Canada Portable Computers
include:
• Full Manufacturer's Warranty
• Toll-free After-Sales Support
• 30-day Total Satisfaction Guarantee

We also Canada-wide
Call & Corporate Accounts Welcome

Call Now 534-6441



Canada Portable Computer

100-10101 100-10101 100-10101 100-10101 100-10101 100-10101 100-10101 100-10101 100-10101 100-10101

Contact: NAC/COM (800) 380-5778

NewsBytes

Apple Previews Quicktime, New System 7.0 Addition

BEVERLY HILLS, CALIFORNIA, JUNE 18 (AP)—An all-day extravaganza, Apple Computer Inc. announced Quicktime, a multimedia extension to the new System 7 operating system for the Macintosh at the Digital World Conference at the Beverly Hills Hilton. The Quicktime release will be made available to developers and consumers by the end of 1991, Apple said.

One of the most remarkable demonstrations of Quicktime capabilities at the Woodcroft Inn, where WoodFruit Inc. created a document about a wine label, *Only the Lonely*, the document said at first appeared to be color photos of scenes from the movie without assistance of text.

But when the deconstructor clicked on one of the color photos, the image came to life in full screen and sound, and a high-pitched melody-like sounds of someone from the movie. What you saw were images, not text, the video in the WoodFruit document could be used to render Macintosh with System 7.0 Quicktime, and raised their voices that software that was necessary to create it.

Apple claims Quicktime will open three-gate development into creating a wide range of new software, including video-conferencing, interactive video mail, live-action video editing and dynamic animation. From what NeXTstep was at the conference, the company seems current. The third party software for application development was already proliferating and at reasonable prices of between \$500 to \$1000.

Quicktime will be installed by the developer's users by dragging the Quicktime extension into the system folder. According to Apple, Quicktime system software is composed of three parts that enable software developers to transport dynamic data in a continuous and seamless fashion across Apple's system. The Movie Toolbox, the Image Compression Manager and the Component Manager.

Apple described the Movie Toolbox as a set of system software services for devel-

opers to incorporate support for "movie" in their applications. "Movie" means dynamic data such as sound, video and animation.

The Image Compression Manager allows developers to take advantage of the many data compression schemes already when working with the large volume of data created when video is digitized for storage on a computer hard disk, Apple said. One example of compressed video data can take as much as 1 megabyte of disk space, so to make the use of hard disk storage for CD-ROM disk image practical, compression has to be used to reduce the size of the files.

Apple described Component Manager as allowing dynamic code, VCLs, system software extensions and other external system services to register their capabilities with the Macintosh system as any application can access these capabilities. This solves the past problem of software developers having to write custom software for a piece of hardware, like a digitizer card, in order to use all the features of the card, and update the software each time the hardware was updated, Apple said. Quicktime allows the developer transparent use of all

the features of the hardware.

Apple has also announced the format they will use in rendering for the System 7.0 Quicktime—Movie and PICT. Movie is the new term Apple is using for any dynamic data, and they refer to the Macintosh format as the container for this dynamic data. PICT is the file format Apple is attempting to standardize for image compression. Apple said it is publishing the specifications for the Movie and PICT file formats, to provide cross-platform applications developers with a standard for the dynamic data packaging from one computing environment to another. Apple has also set some Human Interface guidelines as well.

Three compression/decompression schemes are provided with the first release of Quicktime, Photo Compression, Animation Compression and Video Compression, Apple said. Those may have 10-15 in 1991, shortly after the development release.

Upon release, Apple has several development-oriented Quicktime CD-ROMs, including the Quicktime extensions, documentation, pictures and movie editing, HyperCard, XEMO, sample code, sample movies, and sample content.

The Quicktime Developers will be available from Apple, a Quicktime sample will be available through Apple's website, and a Quicktime extension will be available through user groups and bulletin boards. Pricing will be determined at time of shipping, Apple said.

Graham Peto Editors, Apple, Tel. 408/544-4444



VERSATILE Computer Products Ltd.

WAGDOVER • TORONTO • NEW YORK

101 PINE AVE. #100

FULL TWO-YEAR WARRANTY ON ALL ADVERTISED SYSTEMS

COMTEX
386SX/16
\$1210

COMTEX
386/25
\$1375

COMTEX
386/33
\$1815

COMTEX
486/25
\$2810

WHOLESALE & RETAIL • 101 PINE AVE. #100 • NEW YORK, NY 10119

VCS
386SX/16
\$1075

VCS
386/25
\$1260

VCS
386/33
\$1645

VCS
486/25
\$2425

WHOLESALE & RETAIL • 101 PINE AVE. #100 • NEW YORK, NY 10119

Upgrades

- 16 MB random access \$400
- 16 MB RAM (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200
- 16 MB RAM (200 MB) (200 MB) \$1200

ALL SYSTEMS INCLUDE

- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)
- 1 MB RAM (200 MB) (200 MB) (200 MB)

The future's waiting at

Manufacturing • Export Services • Upgrades
• Rentals • Training

VERSATILE

101 PINE AVE. #100 • NEW YORK, NY 10119
Tel. 212-693-1100 • Fax 212-693-1100

1830 West Broadway, Vancouver V6J 1Z2

Phone 731-1830 • Fax 731-1860

Wholesale 1-800-883-7403

Apple Quicktime Accelerator From Storm

HEALERSVILLE, CALIFORNIA, JUN 5 (ENR)—Storm Technology has announced the development of the Quicktime Joint Photographic Experts Group (JPEG) accelerator and that accelerator runs on Lotus Apple Computer's new Quicktime operating system 7.0 software for dynamic multimedia.

In a demonstration by Storm, Newtonians can large, complex graphic images that are being compressed and decompressed from the hard disk on the fly, stored on the screen by Quicktime alone, with the screen obviously being redrawn, then with the acceleration of Storm's Motion accelerator card, where the changes were almost instantaneous. AppleShare for Storm's motionless display does to determine what functions of Quicktime were used, and those functions are the ones accelerated in the card and software.

Cardinal Apple Development's purchase of the QuickTime Developer Toolkit, which includes Storm's Motion accelerator card, the compression and decompression JPEG image compression called Quickstep, that runs on the card, the company used. The kit is available for now for one full price of \$1,500, through Storm Technology.

Storm's price code means an other development company may want Storm's motion card now, before Quicktime is available, with a free upgrade once Quicktime is released. The Storm's price code resources may be purchased for \$2,000, or bundled with the Quicktime Developer Toolkit for a total of \$3,000.

Contact: Storm/Apple, Storm, Tel. 415/955-1111, fax 415/955-0823.

Lotus To Offer Academic Version Of 3-3-3 Plus

CARLETON HILLS, MARYLAND, JUN 5 (ENR)—Lotus Development Corporation has announced that it will make academic versions of Lotus 3-3-3 Plus for Macintosh available in the education market. The academic edition of 3-3-3 for the Mac is expected to be available in the fall at a suggested educational list price of \$99.

Lotus also announced that it is currently working with two educational publishers, Addison-Wesley Publishing Company and Course Technology, Inc., to develop special textbook editions of 3-3-3 for the Mac. Textbook editions combine a student version of 3-3-3 for the Mac with the publisher's textbook, targeted to different segments of the education market.

Announcing the new products, Allen Johnson, Lotus' education market manager, said, "Our goal is to make Lotus spreadsheet technology accessible to students in a compact and affordable manner. Integrating 3-3-3 with course materials helps students learn the product by actually applying it to the course itself."

Johnson told Newtonians that the new edition version of 3-3-3 for Macintosh is the full commercial version, working only the toll-free toll phone support.

Lotus spokespersons Pacific City added that 3-3-3 for the Mac is moving smoothly through the beta testing cycle

and is on target for fall release. Lotus claims it will support Apple's System 7.0 operating system and will be compatible with all existing Lotus 3-3-3 files and macros.

In related news, Apple Systems has announced that the spreadsheet package will include Adobe Type Manager (ATM) software and a core set of 19 typefaces from the Adobe Type Library.

Contact: Patrick Kline, Apple Systems Inc., 4100 Tilden St., Lotus Development Canada Corp., 410-779-8000.

Low-Cost Mac Ethernet Adapter

SALT LAKE CITY, UTAH, JUN 5 (ENR)—Depco Communications has announced a \$999 Ethernet adapter for the Apple Macintosh which will allow a network of Macs that do not have expensive data, including the Classic, Plus and Portable models, to connect to Ethernet networks.

The adapter consists of an internal box that plugs into the Mac's printer port, through which all communications with the outside network occur, while

communicating with the network. Called Depoport 8/2, the adapter works with AppleShare, Netware, 3Com and A/UX open sharing systems.

Two models of Depoport 8/2 are available. Depoport 8/2 has a BNC connector for thin Ethernet, as well as an RJ45 port that allows connection to an external transceiver for thick Ethernet and other cable systems. Depoport 8/2-T has an RJ45 connector for Ethernet-based peer-to-peer systems.

Contact: David Brown, Depco, 801-571-4600.



Strachan Computers

Incomparable Service & Clone Prices

10 YEARS OF SERVICE

Incomparable Service

- ▲ Free delivery & set-up*
- ▲ 30 days on-site service*
- ▲ Free loaners (as available)

Clone Prices

* Vancouver area only

All quality computers are assembled in Western Canada's largest computer factory

80286	80386-16SX	80386-25	80386-33c	80486-25
\$899	\$1199	\$1699	\$1850	\$2899

All systems include 8MB RAM, floppy drive, 40-MB hard drive, monitor, Microsoft-licensed DOS full system, Windows 1.0/3.0 systems, two-year warranty on computer.

■ LEASING ■ PERSONAL FINANCING ■ CUSTOMER SUPPORT ■ RENTALS FROM \$24/WEEK ■ NETWORKS

STRACHAN

COMPUTERS LIMITED



NORTH VANCOUVER
HEAD OFFICE
1150 MAIN STREET, V1J 1C3
MON-FRI 10 a.m.-6 p.m.
TELEPHONE: 984-8002
FAX: 984-8458

WEST VANCOUVER
232-1185 MARINE DRIVE, V7V 1A4
MON-FRI 10 a.m.-6 p.m.
Other times by appointment
TELEPHONE: 582-8454

COQUITLAM
11000 GLENVIEW DRIVE, V3B 1B4
MON-FRI 10 a.m.-6 p.m.
Other times by appointment
TELEPHONE: 542-0370

Apple and IBM May Exchange Technologies

NEW YORK, NEW YORK, JUN 7 (ENR)—Apple Computer and IBM are discussing "an exchange of technologies that could change the balance of power in both the workstation industry and the workstation market," according to an article in the *Wall Street Journal*.

The article, by G. Pascal Zachary and

Stephen Ressler Votel, states that Apple is considering licensing the IBM 68000 (which dominates the competing microprocessor that is used in IBM's XSeries 4000 line of workstations). It also indicates that IBM has interest in Apple's software technology which it uses in both a close-to-the-arm for the OS/2 platform

and to help in licensing its dependence on Intel's x86 architecture, the sole provider of 486 & PC-DOS, Windows and OS/2.

Apple's entire line of Macintosh computers is based on Motorola processors and it appeared to analysts earlier this year that Apple had decided on the Motorola 68000 family of processors as the base for its entry into the high-end



workstation market. First, according to the article, Apple has become dissatisfied with Motorola's ability to deliver products such as the 68040 and 68000 chipsets in a timely fashion and in looking elsewhere. The report says that Apple is considering chips from both Hewlett-Packard and IBM.

An Apple sale of IBM chips would also provide a strengthening of IBM's position in the RISC chip market. The announcement earlier this year of a Compaq-Microsoft-Digital consortium to develop a new RISC platform, situated around a chip from Sigma Computer Systems, has led to speculation that IBM's RISC processor will be chosen to utilize in a very small portion of a market already crowded with industry leaders Sun and March 1991 contract Hewlett-Packard.

An IBM executive contacted by *Newsbyte*, while not able to comment directly on the *Wall Street Journal* statements, did say, "Such an arrangement would make sense. The licensing of our RISC technology is part of our overall strategy to better market our production capabilities. The recent agreement with Hitachi that allows them to put their label on our 6000-series processors is another indication of this strategy."

Speaking to the part of the story that has IBM interested in Apple software technology, he said, "It is no secret that our relationship with Microsoft is a marriage of convenience and that we are interested in lowering our dependence on Microsoft." He added that he has not been a party to any discussions with Apple that "may or may not be going on," but that such discussions are routine.

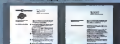
Judge "Inclined" To Disallow Apple Patent Claim

SAN FRANCISCO, CALIFORNIA, JUNE 14 (ENR)—The judge hearing the Apple Computer, Inc. copyright suit against Microsoft Corporation said Hewlett-Packard, has been granted a ruling that he was "inclined not to allow Apple Computer's late, four-year-Microsoft 'copy of itself' as its showing of a licensing agreement with Apple in 1985.

Although U.S. District Judge Virginia Walker was opposed to calling the trial issue a "discovery" and saying that a "copy" could be a "discovery" as late this date," three years after filing a lawsuit against the software company, he delivered a decision on this claim and ordered by Apple to submit the matter. The judge responded to what he termed "discovery" as these terms prior to the trial hearing which is scheduled for July 4.

OUR WINDOWS ARE BEYOND WORD'S.

WordStar Legacy™ vs. Microsoft Word.



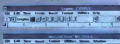
WordStar Legacy is right and left justified and also enhanced page layout features. Place text and graphics exactly where you want them.

WordStar Legacy vs. Microsoft Word.



WordStar Legacy is right and left justified and also enhanced page layout features. Place text and graphics exactly where you want them.

WordStar Legacy vs. Microsoft Word.



WordStar Legacy is right and left justified and also enhanced page layout features. Place text and graphics exactly where you want them.

WordStar Legacy vs. Microsoft Word.

Alike Alike

Yes all files are alike. Now you can have better word processing. And quality type set in 100 point increments between 1 and 720 points.

For more information, call or write:

Encompass Computers

15023 - 91A Avenue, Surrey, B.C. V3R 9T8 Tel: 1-888-583-3668

©1994 Encompass Computers. WordStar Legacy is a registered trademark of Encompass Computers. All other trademarks are the property of their respective owners.

Atari Changes MP's Strategy, Sells Plant

SCOTTSVILLE, CALIFORNIA, JUN 7 (AP)—In an attempt to cut manufacturing costs following a disappointing 1990, Atari Corp. is planning to sell its main assembly plant in Taiwan for a reported \$40 million.

Angus J. Leggett, spokesman for Atari, said Nintendo that the company has "tuned up a series of subcontractors throughout Taiwan and Hong Kong" and that "they are not doing the assembly."

According to the company, a contract has been signed for the sale of the plant and closing is scheduled for late June 1991. The sale is contingent upon several conditions of closing being met.

Atari posted a 3 percent decrease in sales for 1990 down to \$481.6 million, from \$502.6 million during 1989. Atari, like many hardware manufacturers, is having difficulty to cut costs in the face of increasing competition and shrinking market share.

Leggett, in answer to a question concerning worldwide layoffs last year, said Atari is looking at all operations each month, "without the company is clearly in a program to improve operations. Atari, in fact, conducts operations on a 'company-by-company' basis. He previously observed the European market as being 'tough'."

He said that Atari would continue to pursue the U.S. market, but deny, as it currently only accounts for 10 percent of the company's revenue.

Gannett August 1991, Atari, 400-744-2333

CANADIAN NEWS

Bold Point Signs With Marital Canada, Updates Team

VANCOUVER, B.C., JUN 5 (MR)—Bold Point Software has signed Marital Canada as its third major distributor for Texas, the company's primary dealer and inventory control software. Bold Point has also announced the pre-release of the software, making it easier to adapt to various business needs.

Toronto-based Marital Canada joins Leggett's Marital Canada, also of Toronto, and B. Marketing of Cornwall, Ontario, as nationwide distributors of Texas. Barry Johnston, president of Bold Point, said

Nintendo the deal only covers Canada at the moment, but Bold Point is now looking for a strategy for the U.S. market.

Team works with Computer Associates' Acropac BoldPoint accounting software on IBM and compatible PCs. It is also being updated with other accounting software, the company said.

Johnston said that a key feature of the new Version 2.05 of TMS will be the ability to change the rate in minutes to meet a given business. After sales, for example, might calculate "refill" for "interim."

The new release also allows users to call up various accounts receivable summary, stored in the Acropac BoldPoint accounting software, without leaving Texas. The company claims that this new release is part of a Bold Point policy of providing customers at least two updates per year.

Contact: Barry Johnston, 400-744-2333, 400-687-0000, fax 400-744-2333

BCE Mobile, B.C. Tel Plan Joint Venture

MONTREAL, QUEBEC, JUN 10 (MR)—BCE Mobile Communications and Vancouver-based British Columbia Telephone Group have announced plans for a joint venture.

The first projects for the new group, which will take a broad mandate to go after the personal communications market, will focus on paging and digital wireless telephone services. The companies' real success details will be released over the next few months.

BCE Mobile also announced that it has agreed to sell the British Columbia paging and telephone answering operations of its National PageOne subsidiary to the B.C. Tel Group. Due to close August 31, the sale is subject to regulatory and financing approvals.

Contact: Peter Lussier, 505-544-574-140-0235

Automated Form Creation

TORONTO, ONTARIO, JUN 12 (MR)—Telcom Technologies has announced collaboration that automates the creation of forms for the company's Pdf-forms and Pdf-forms. Pdf-forms processing software. Pdf-forms creates paper forms, scanned using a graphics scanner, into an electronic format that the Pdf-form software package can use.

Contact: Telcom Technologies



BIG MOUTH

VOICE MAIL
TELEMARKETING
CALL PROCESSING
ALARM NOTIFICATION

Canadian Exclusive Sales Office

PC Voice Technology Inc.

Dallas (409) 569-2817 Fax: (409) 569-5871

DEALER INQUIRIES WELCOME



Canon BJ-10e

Great for Mac and IBM

Burst your Summer-time Blues with a Bubblejet!

\$49

Macintosh
Authorised Canon Dealer

Visit us for a PERSONALIZED DEMO
Have a question? Problem? Call us!

Authorized:

Apple • Atari • Commodore • Dell • Epson • IBM • Intel • Mac • Microsoft • Novell • Oracle • Sun • Tandy • Zenith

MACINTOSH SOLUTION CENTRE

SOFTWARE, HARDWARE, & ACCESSORIES

Desk Express II	\$79.99	50 MB Hard Drive	\$699.99
Desk Duplexer	79.99	20 Bulk Disk	34.99
1 MB Scanner	69.99	Books and Clones	12% OFF

2400 BAUD MODEM only... \$129.99

TOMORROW'S GRAPHICS

3615 Kingsway, Vancouver, BC V5R 5M1
Ph: 433-8433 • Fax: 433-9887

ZEBNA

386-25 MHz

ELECTRONIC INC.

\$799

True INTEL 80386-25 MHz SYSTEM

- 1 MB RAM Expandable to 6MB on board
- 1.2 MB 5.25" Floppy Drive
- AT IO
- Desktop Case & Power Supply
- Enhanced Keyboard

DEALER ENQUIRIES WELCOME

Unit 110-12110 Vancouver Way
Richmond, B.C. V6X 1M1
Tel: (604) 271-0131 Fax: (604) 271-0132

New Plain-paper Fax

PALO ALTO, CALIFORNIA, JUNE 04 (ENR)—Hewlett-Packard (HP) already a leader in the laser and inkjet printing markets, has come out with a fax machine with an first standard plain-paper fax, the HP Fax-500.

This is the second plain-paper fax device HP has developed, the first being the HP LaserJet Fax accessory, a device that lets between the phone and the LaserJet, and allows plain-paper printing of fax documents on HP LaserJet printers.

HP says the new standard plain-paper fax costs for \$2,000. It is able to hold 100 sheets of letter-size (8.5 x 11 inch) paper, and eliminates problems associated with thermal faxes, such as creasing, fading and the need to place copy documents before they can be received.

The HP Fax-500 allows broadcasting paper and has an one-clipper scanner. It also puts in at least up to 300 documents, provides 14 grade-levels, and transmits at 9,600 bits per second. The fax can automatically receive a busy number up to 15 times at three-minute intervals as well.

HP has said that the new fax also allows storage of 100 numbers that can then be speed-dialed, allows delayed dialing, sequential broadcasting for sending transmittals to as many 100 preset locations, and sequential polling, which allows the unit to call as many as 100 locations to pick up waiting transmittals.

Contact: Hewlett-Packard, (800) 270-2277

Man Catches Computer Virus?

NEW YORK, NEW YORK, JUN 10 (ENR)—The World Wide Web has reported in its June 10th edition that John Stevens, a Philadelphia-area computer programmer, has constructed a virus from his computer.

According to the story, Stevens' device, which he called, "the 10-year-old's computer virus" is designed to that of a "software virus" which on a computer. Stevens is quoted as saying, "Stevens has become fearful, like something is eating up the memory, the data. The bus line and low energy. He can't hold on to things like. Even an ESD (electrostatic discharge) of his brain waves keeps changing. It's becoming more and more erratic. The virus could eat him up and he would be a blank and he's like a vegetable."

Stevens was quoted as saying he became sick about a week after his computer began to show signs of a virus. Stevens has indicated he has been informed, saying, "I was curious about how many software programs from other people, people I didn't know with."

Other stories in the June 10th World Wide Web include "John Stevens Found," "The Prophecy of John Stevens," "World's Greatest Program" and "The New World's Own Best Her Sonnet."

Xerox Windows Document Input System

CAMBRIDGE, MASSACHUSETTS, JUN 12 (ENR)—Xerox Imaging Systems (XIS) has announced the introduction of M3000, a new high-speed document input system for the PC. The system will be available for shipment in late June and will have a suggested retail price of \$9,995.

The M3000 document input system is composed of a M3C-based processor, a high-speed, four-page scanner with an automatic document feeder (ADF), and XIS' proprietary intelligent character recognition (ICR) software. The processor runs Windows Document Merge (DMS) for 386/486/586 microprocessors and an upgrade of RAM, while the scanner features 400 lines per inch (DPI) at a scan rate of 3.7 seconds per page, on 11 x 17 inch plates, a 30-page ADF, and 4 MB of internal RAM.

The system's Graphical User Interface (GUI) runs under Windows 3.0 and, according to XIS, the software supports more than 50 word processing formats, spreadsheets, database electronic publishing and graphics editing programs.

Contact: Janet Wooten, Xerox Imaging Systems, 617-864-0200

Erasable Ink Developed For Copiers & Printer Ribbons

TOKYO, JAPAN, JUN 13 (ENR)—Tohokai Chemicals Inc. has developed a new ink that changes from black to white when heated. The ink is expected to revolutionize the area of copying and to contribute to the preservation of confidential documents. It could also reduce tons of waste paper in many corporate offices.

The unique ink can be used in copying machines and on computer printer ribbons. A document when it is copied or printed with this special ink is readable even if the ink is covered with a device equipped with a heating lamp.

The ink is made from cyanine-type color pigments, which are combined with heat-sensitive materials. The ink disappears under the light of a shortwave infrared ray with a wavelength of 100 micrometers. Shion Denko says a heating lamp is at the best candidate for the light.

A carbon black toner for copiers will be developed jointly with Sumitomo Chemical, and it will sell for 10,000 yen (70¢) per cartridge every year, says Shion Denko. It also develops the microarray device using a heating lamp. The heating speed will be about the same as that of a copier.

Contact: Shion Denko, (03) 3342-0111.



FUJIKAMA

A DISTRIBUTION PARTNER

1150, 6721 Graybar Rd., (near No. 9) Richmond, B.C. Canada V6W 1G3

Tel: 604-273-3838

Fax: 604-278-6366

Toll-Free: 1-800-663-6366 (24/24)

Dealer Inquiries Welcome

FUJIKAMA 800-50 Series

FUJIKAMA 8000-1500

FUJIKAMA 8000

FUJIKAMA 8000-1500

Intel

TRUE INTEL CPU
PEACE OF MIND!

FUJIKAMA 8000-1500

VLSI

Fujikama Barebone, Full Systems, Motherboards, Controller Cards, VGA Bundles, & More.

• VANCOUVER • TORONTO • HALIFAX • MONTREAL • CHICAGO

COMPUMAX 781-2828

(AUTHORIZED FUJIKAMA SERVICE CENTRE)



Fujikama Super VGA Monitors
up to 40MHz Video Bandwidth



Ask
Your Dealers
for the Fujikama
High-Quality
SVGA-TMB & Monitor
Upgrade

COMPUMAX

An

Affordable

Solution

102-1568 WEST BROADWAY,
VANCOUVER, B.C. V6J 1X6

731-2828

NOVELL

CUSTOMIZED SOFTWARE

MAINTENANCE UPGRADE

MULTI-USER APPLICATION

COMPUTER TRAINING

RENTAL & LEASING



Setup & Support Package

AUTHORIZED
NOVELL
NETWORKING

ACCPAC PLUS

EXCELLOR®
BUSINESS MACHINES

FUJIKAMA
a.k.a. FUJITSU PERSONAL PC



EXCELLOR® BUSINESS MACHINES

Leading edge in technology, power of 586 and 486 based computers for business and engineering applications



COUPON FREE Software

with purchase of
computer system

Word Processor

Database

Spread Sheet

Desktop Organizer

Speller/Thesaurus

Graphics

Communications



EXCELLOR®



FUJIKAMA
a.k.a. FUJITSU PERSONAL PC

8 in 1

by Spinnaker

Valid Between July 7-31, 1991

#1 Choice for retailer & wholesaler

Partial Sale

Order/Supplier

Loading

Inventory Control

Service Management

Financial Status

Accounts Receivable

B/C/T Support

Single Entry Operations

Full Integrated System

Real Time Update Accuracy

Multiple Level Password Security

Quick Update Database

Multitasking Capabilities

COMPING COMPUTER SYSTEMS
ADMINISTRATOR

MULTI-ENTERPRISES®
SOFTWARE FOR EFFICIENT OPERATIONS
BY STI TECHNOLOGIES INC. 710-6660



SPECIAL

COME & SEE US

MORE SPECIALS IN RETAIL DEPARTMENT

COMPUTERS

Compaq 287 10MB Harddisk & Mouse
\$287.00 \$329.00
\$427.00 \$469.00
\$677.00 \$719.00

BUILT SPECIALS

287-10MB \$199
287-10MB \$199
287-10MB \$199

Test computer hardware
diagnostic program
CHECK IT V.2 \$100*

OVER 300 GAMES
20% OFF

SOFTWARE

Microsoft 2.0 Word Processor
\$79.00
Microsoft 2.0 Excel Spreadsheet
\$79.00
Microsoft 2.0 Access Database
\$79.00
Microsoft 2.0 PowerPoint
\$79.00
Microsoft 2.0 Project
\$79.00
Microsoft 2.0 Visual Basic
\$79.00
Microsoft 2.0 Visual FoxPro
\$79.00
Microsoft 2.0 Visual Basic
\$79.00
Microsoft 2.0 Visual FoxPro
\$79.00
Microsoft 2.0 Visual Basic
\$79.00
Microsoft 2.0 Visual FoxPro
\$79.00

LAPTOPS & NOTEBOOKS

Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00

Cable Modem

Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00

NETWORK

Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00
Compaq 287 10MB
\$427.00

SPECIAL

\$4⁰⁰ OFF High Capacity
Disk 2.0MB

ONLY \$8.99 per unit
\$10.00 original

Limited to 5 units per customer

PRICES SUBJECT TO CHANGE WITHOUT NOTICE. LIMITED QUANTITY

Exhilaration



For Reliability,
Upgradability,
And Speed That
Will Take Your
Breath Away
The PC Brand
of Choice is

AST

SOVO

COMPUTER CENTER

1110 - 2691 Viscount Way, Richmond, B.C.
Tel. 270-4800 Fax 270-4808

THE BEAT OF AST

- With technical expertise and excellent service on AST systems
 - Making AST systems affordable
- Now available: AST Notebook Penetration Series

Curtin University Intros Electronic Library

PERTH, AUSTRALIA, JUN 14 (PC)—The library of Curtin University has introduced CD-ROM equipment and data to facilitate information retrieval. The installation of the equipment is part of a move by many libraries towards "electronic" libraries, where information retrieval is much easier and efficient than traditional methods.

The network is based on 12 CD-ROM players, which are accessed via 12 workstation. Information provided includes basic descriptive information and full-text periodical databases.

The database cover business management, engineering, education, health sciences, psychology, library and information science, and Australian social science and education. The databases are structured to allow users to access all the databases from each of the 12 workstations.

"It is also possible for more than one person to use the same CD-ROM at the same time, so duplicate copies of popular databases do not have to be bought," said John Frykholm, Curtin's public services librarian.

According to Frykholm, the CD-ROMs allow users to be completed tasks faster than the previously used printed indexes, and use a more sophisticated method. The library has increased its holdings of business and management periodicals by 74 percent due to the introduction of the CD-ROM facilities.

NEWSBYTES

ROUNDUP: Stories Carried By Other Media

WASHINGTON, D.C., JUN 7 (PC)—Roundup is a hand full of recent computer stories carried in other publications (reprinted here this past month).

The June 5 ComputerWorld says that Lotus 1-2-3 features "uphill climb" as the world of Microsoft users who are the reason to jump from Excel to the long-delayed Lotus spreadsheet which is finally in beta testing 45 months after the initial announcement. The front page also carries a look at the question of whether 3d computers will actually have a set of potential users lined up to buy.

Computer Reseller News dated June 5 says that IBM's big OS/2 push is attracting value-added resellers who are moving from microcomputers to embracing the powerful operating system.

Computer World June reports on the news that Microsoft will release two or three new under-\$100 products aimed at the consumer market this fall.

Network World products that later this month IBM will "warehouse" major enhancements for the IBM Communications Controller, including Ethernet support and a faster relay interface.

Release 3.6 dated 10 May, 1991, looks at the trend of using libraries of application components instead of applications. Intel's VMS/Proteon development tools and Microsoft's new way in the VMS/VMS environment.

June's Personal World looks at the OS/2 product competition.

SOVO

COMPUTER CENTER

AST
RESEARCH INC.

DataTrain



EPSON



NEC

GOVERNMENT & CORPORATE PURCHASE ORDERS WELCOME! AUTHORIZED AST SERVICE CENTRE

NETWORK CONSULTING
COMPUTER PURCHASE SETTING
SYSTEM INSTALLATION

MAINTENANCE & REPAIR
HELPING YOU GET DATE ON SOFTWARE
DESKTOP PUBLISHING

OPTICAL USE OF EXISTING COMPUTERS
SOFTWARE SUPPORT & TRAINING
CUSTOMIZED PROGRAMMING

DataTrain DPC 3020

Best Value on the Market

INCLUDES:

- 280 MB • 1.44MB 3.5 Floppy Drive
- 800MHz microprocessor, 20 MB
- Enhanced Keyboard • 2 Serial, 1 Parallel Ports
- Serial Expansion
- VGA Adapter • 80 Windows/Screen
- VGA Monitor (1024x768, 20 inch Dot Pitch)
- 800 MHz • 87, 50/60/800 Software
- 48MB Hard Drive • Two Year Warranty

\$1,895

AST Systems PREMIUM EXEC NOTEBOOK 386SX, 20MHz

- 286 Expansion to 486
- 20MB • 4MB
- VGA, 20 pin video
- 2000 x 1000 dpi touch
- Weight 4.5 pounds
- All options

Unbelievable

Call Now for All AST Products
100 DAY RETURN POLICY, GUARANTEE
THEY ARE MADE BY AST

ASI Systems AFFORDABLE COMPUTERS

- 286 Windows
- 800MHz • 4MB System 16
- 10MB RAM • 100 pin video
- Mouse • 100 pin monitor
- 11 serial, 1 parallel, 1 game
- 2000 x 1000 dpi touch
- Enhanced keyboard

286/12MHz \$799
386SX/16MHz \$1175
386/25MHz \$1295
486/25MHz 4MB \$2475

Add \$300 for VGA Card & Monitor

Hardware/Software BEST PRICES

Cadillac 128MB type	9999
Card Scan	9999
Gateway Screen Plus	9999
IBM PC	9999
IBM Business 286	9999
Gateway 286 Laptop	9999
Intel TurboCharger	9999
Logitech Business 286	9999
Gateway 486	9999
Windows 3.1	9999
IBM Software	9999

• PRICES SUBJECT TO CHANGE WITHOUT NOTICE •

#110 - 2691 Viscount Way, Richmond, B.C. V6V 1M9
Tel. 270-4800 Fax 270-4808

IBM is moving forward in some areas like new 3.58 Mbytes 5 1/4" diskette drive is now shipping and will become a standard item; some PS/2 machines will be offered with a choice of keyboards - 86

When questioned about the rumored, strained relationship between IBM and Microsoft, Bussey said that the most serious concern for both companies was to work together and that each should see

Webb, 1999 *Microcrustaceans*

"If they don't perform, we're going to make sure the customer doesn't miss out."

taper most typical of slides, the 3.5" removable optical drive will hold up to 50 minutes of audio-tape, the new tape-loading unit has a capacity of 1.5 gigabytes, a new 400 megabyte 3.5" floppy disk with fast 11.2ms access time.

While inter-shopping could benefit space use, Ebel predicts that most existing PC users will be able to use OS/2 versions 1.0 and 1.1 and only few users have more requirements than existing versions of OS/2, but will also run all OS/1, Windows 3.0 and UNIX applications. Bandy predicted that there would be more than a million copies of that operating system in use by the end of this year - through and less than one percent of the PCs installed today.

It was conceivable IBM would start building OS/2 with PS/2 models. When asked why IBM seemed to be embracing Microsoft's operating deals with computer manufacturers (Novell and Intel), the unit's "Business makes its own development products, while Micro-Soft tends to buy its way into computer users."—a comment which may shed some of the light.



SUPERIOR LASER SUPPLY
Your Recharge Specialists

Protect Your Investment!

Preventive Maintenance cleaning and 21 point inspection

- complete disassembly of Laser Printer
- all components are removed, inspected and cleaned
- moving parts lubricated
- main board inspected
- waste, much more

\$119⁰⁰



CALL TODAY

Quality Workmanship Performed with Pride and Integrity by Factory Trained Technicians

Call for the best prices on new Laser Printers and accessories

is your house safer here or damaged? Don't replace the whole house! We'll replace the roof but leave the walls alone.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

\$39.95

**Service
Contracts
Available**

* Perhaps a not infrequent, but rather
Lapses (perhaps as some holders are
in commercial concerns.

942-5512

*Private equity in Canada
increased only 1% in 2011.
Source: PwC LLP, 2012

*** NEW LOCATION ***
GRAND OPENING

**ACT-486/
25MHz-128K
Cache RAM**
128K Cache RAM
100MB Hard Drive
• 4MB RAM
• 1.2MB Floppy
• Serial / Parallel
• MSX
• Mono Monitor
• 101 Keyboard
Complete
\$529.95

[illegible]

**ACT-386/
33MHz-84K
Cache RAM
40MB Hard Drive**
• 1MB RAM
• 1 3.5" Floppy
• Serial / Parallel
• NCP
• Mono Monitor
• 101 Keyboard

**Complete
and ready**

**ACT-386/
25MHz**
40MB Hard Drive
• 1MB RAM
• 1.2MB Floppy
• 2 x Serial, 1 x
Parallel, 1 x Game
• MCP
• Mono Monitor
• 101 Keyboard

**Complete
\$1,349**

ACT-386SX
40MB Hard Drive

- 1MB RAM
- 1 3MB Floppy
- Serial / Parallel
- MOP
- Mono Monitor
- 101 Keyboard

Complete
\$1199

[illegible]

**ACT-286/
1MHz**
40MB Hard Drive

- 1MB RAM
- 1.2MB Floppy
- Serial / Parallel
- MCP
- Mono Monitor
- 101 Keyboard

Complete
system

**WE UPGRADE,
SERVICE,
&
REPAIR
YOUR PC**

Call our experienced technicians for FREE estimates & consultations. We have a full service shop, to provide you with quality service with the lowest prices.

GRAND OPENING SPECIAL

- **Free Mini-Tower Case Upgrade** for all 386+/486 systems (purchased)
- **FREE MS-DOS Package** with 486 Systems.
- **Microsoft Windows**...

REVIEW OF THE LITERATURE AND STUDY DESIGN


IQ
COMPUTERS INC.

MONTHLY SPECIAL OFFERS

LIBRARY **INSTRUMENT**

Add to complete system price	
MM per MB	\$75
2nd Floppy Drive	\$75
QMB Hard Drive	\$125
VGA Packages	\$300
4-Free VGA	\$400
16-Pin Printer	\$200

2400 INT	575
2400 EXT	875
2400 Fax/Modem	575
Product Fax 2400 (incl. attach.)	875

All Books & Software: Same in stock: 20% OFF

985-6735 Fax 985-8726

1003 Marine Dr., North Vancouver, B.C.



Intra 386SX LAPTOP

w/40MB or
80MB Hard Drive

Lynx Book Size Personal Computer 386SX

If you frequently need to carry your files between offices or between home & office, then consider this book size PC that fits in a briefcase, just keep a keyboard and monitor in both your home and office and carry the book size PC between them. It weighs less than 6 pounds, and measures 12 inches in length, 8 inches in width and 2.8 inches in depth.



1445 West Broadway, Vancouver, B.C. V6H 1K6

736-4488



PC COMPUTERS LTD.
41-038 RD. 3 FLOOR, RICHMOND, B.C. CANADA V6X 2G2
TEL: (604) 276-8808 FAX (604) 273-9932
10335 KING GEORGE HWY, SURREY TEL: 862-6386

BRINGING TOMORROW'S TECHNOLOGY TO YOU TODAY.

Now Celebrating our 8th Anniversary
with all-round specials on 486, 386 and 286
systems. (Desktops or Laptops)

NOVAS 486-50Mhz

4MB RAM, 1.2MB or 1.44MB Floppy Drive,
I/O - with serial, parallel, game port.

Fast 130MB Hard Drive.

Enhanced Textile Data Comp Keyboard.

VGA Color Monitor .28mm

Letter Quality Printer

2 Yrs. Parts & Labour Warranty

\$4499

"We Service What We Sell"

NEWSEYES

DesktopTV Turns PCs Into TVs

KAN JOSE, CALL-
FORMA, JUN 23 (ENR)—
AVNet Technology is now
shipping a VGA version
of its DesktopTV add-in
board for IBM PC

and compatible microcomputers. According to the company, the \$295 VGA model provides a full-screen video image and uses an CRT chip set designed for high-end TVs. The chip set provides double scanning with advanced interpolation technology and comb filtering to minimize jaggedness. "Customers use DesktopTV as a cost-effective way to add a high-quality television monitor to their workstations or home-



sign televisions, allowing television and broadcast use providing interactive training," said Dan Henshaw, president of AVNet.

According to the company, DesktopTV is capable of receiving 119 channels, allowing VHS, VHS and cable TV channel selection as well as videotext, VCR and other RS standard NTSC signals. Controls for the television are operated from the keyboard and sound is delivered by an external speaker, which is included.

Contact: Ken Marshall, AVNet Technology, 800-257-5348

Microsoft Obtains License For JPEG Software

REDMOND, WASHINGTON, JUN 5 (ENR)—Microsoft has announced that it has licensed rights to the JPEG (Joint Photographic Experts Group) image compression and decompression software from Xerox Technology. The company says it plans to use the JPEG file compression system on future Microsoft applications, languages and system software products.

JPEG is an international standard agreed upon by the International Standards Organization (ISO) and the Consultative Committee for International Telegraph and Telephone (CCITT) standards committee, for compressing and transmitting digital images from color photograph to images.

The JPEG system is, in fact, one of the technologies used by major video services to transmit compressed photo files to their subscribers from such services as the Super Book. Image files can be compressed by factors of up to 50 to 1 without loss of image quality, allowing for much faster effective data transmission via modem.

A Microsoft spokesman said that Xerox's compression technology was selected because it was the fastest software-only solution (no compression) that the company had seen, and also because it is compatible with a wide variety of hardware.

Contact: Microsoft, (800) 486-6071

Microsoft To Host Developers Tools Forum

REDMOND, WASHINGTON, JUN 5 (ENR)—Microsoft has announced that it will host the Microsoft Developers Tools Forum, an open forum for developers who use Microsoft Basic, Microsoft Basic products, Microsoft Word, and Microsoft C++ development tools. The conference will be held August 25-28, 1991 at the Washington State Convention Center in Seattle.

Microsoft Chairman Bill Gates will present one of the keynote addresses. Other keynote speakers will be Mike Ingles and Steve Ballmer. The cost of the forum is \$795, with a \$100 discount if registration is completed prior to August 1st. For \$495, attendees can attend through telephone arrangements on Basic, Word, C++ Basic, and those participating in the entire agenda.

Other activities will include a dinner with the developers of the various products being discussed, and sessions where attendees can meet with their peers to discuss topics of mutual interest. There will also be an open computer lab where Microsoft service representatives will be available to help with specific programming questions, and provide information including address products and tools. Other sessions will discuss the Microsoft Windows graphical environment, Microsoft, DOS and C++.

Registration information is available by calling 800-474-7748, or outside the US 425-937-0967.

Contact: Microsoft, (800) 486-6071

Ballpoint Mouse Wins Design Award

REDMOND, WASHINGTON, JUN 11 (MS)—Microsoft Corporation has announced that the Industrial Designers Society of America (IDSA) has selected the Microsoft Ballpoint Mouse to receive a Bronze Industrial Design Excellence Award.

The Microsoft Ballpoint mouse was selected from 680 applications in 19 personal computer user class. Reviewers judged the positive overall impact, accessibility, benefits to the user, benefits to the client or manufacturer, appropriate use of materials and processes, and appearance.

The Ballpoint Mouse attaches to the keyboard of a laptop or notebook computer, and comes in an ergonomic bracket and clamp made of varying lengths. The unit can adjust the angle of the mouse relative to the keyboard.

The Ballpoint mouse can be set in 0, 30, 60 or 90 degree angle while attached to the keyboard. It can also be removed from the clamp and used at any angle or orientation. Four user-programmable buttons (two on each side of the ball) allow the user to specify through the setup procedure which one of the buttons will be active. Clicking a chord with the index or middle finger, while moving a chord with the thumb. The device has a 400 computer-per-second resolution. Microsoft's customer toll free number (800-425-5800) for support.

Contact: Microsoft, (204) 586-5831.

PenApps Development Tools For Windows

SCOTTSDALE, ARIZONA, JUN 12



(MS)—Meta Corp. has announced PenApps, an application development environment for point-based computers in use under Windows for Pen. This increases the potential market strength of Windows for Pen, an extension for Microsoft's graphical operating environment.

PenApps is currently available in a developer's version from the MSO Corp.'s PenPoint operating system, which is targeted specifically with Windows for Pen. This uses an IBM/Apple style entry, as applications created in PenApps for PenPoint can be migrated to PenApps for Windows for Pen and vice versa. Through transparency, the applications take full advantage of the strengths of each platform and, therefore, are not hindered by a least common denominator lock and load, according to Meta executives.

No releases for the Windows platform are announced. The product cannot be released until after Microsoft's own pen extensions, which also have no announced release date. Meta shipped PenApps for the GO system as Micro-

WordPerfect Font Scaling For Old LaserJets

EMERYVILLE, CALIFORNIA, JUN 11 (MS)—Font-On-The-Fly is a Font-Scaling package with 15 applications for WordPerfect users. Shipping this month, the package uses popular LaserJet printers (and compatibles) to produce images of fonts normally only available in the newer LaserJet III or through expensive or complicated means.

The new product from LaserTools is designed to produce these fonts even as dot matrix and digit quantities. The fonts include the Times, Courier, Extended Baseline, as well as Futura Bold, Univers Condensed, Courier and Courier. The Font-Scaling technology used is identical to what is used in Comptex-Font for the new options for LaserJet III sets.

Type sizes available now from 1/4 to 200 points. Font-On-The-Fly is available in Windows, as well as the old word processing or graphics or programs that work with WordPerfect software, but with a full range of fonts now available. It costs for \$149.

Contact: Meta Corp., 1-800-760-8000.



InfoSpec Systems Inc.

#101 • 2024 Kingsway, Vancouver, B.C. V6B 5T5
Tel: (604) 430-1233 Fax: (604) 430-5748

Business Hrs.: Monday - Friday 9:30 - 6:00 Saturday Closed (Beginning July 1)

Your One Stop Business Solution Profitek Systems



Point-of-Sale

Accounting

Inventory Control

Payroll

Order Entry

A Profitek System, we are committed to quality products and excellent service. We specialize in Point-of-Sale Systems and Novell Network Setups. Profitek is also our showroom which has over 10 workstations ranging from 286 to 486 PCs linked by Novell Advanced Networks. We also have over 20 combination computers, laptops, monitors, dot-matrix, laser, and portable printers on display.

Trans Instrument
TM2000 286 Notebook

\$2,995

Mitsubishi 286 Laptop
\$1,995

286 - 128MB VGA System

1GB RAM, 1.2GB 5 1/4 HD
486SX 25MHz Intel Pent Dsk
VGA Color Monitor 1024x768
286 VGA Synthesizer Card
160 Key Enhanced Keyboard
One Year Parts/Labor Warranty

\$949

386SX 16MHz VGA System

\$1,299

386SX 25 MHz VGA System

\$1,539

386SX 33 MHz VGA System

\$1,739

386 Configuration

1GB RAM, 1.2GB 5 1/4 HD
486SX 25MHz Intel Pent Dsk
VGA Color Monitor 1024x768
286 VGA Synthesizer Card
160 Key Enhanced Keyboard
One Year Parts/Labor Warranty

Profitek
System and all
MS Windows
For Info
Call

AS V10	\$395	Microsoft Word - Printer	\$95	DEARMS - Microsoft	\$ 19
AS V10 (Refurb)	\$195	Source Setup	\$10	Quattro 4.0 or later for this	\$ 35
Canon Copy Fax V12	\$145	Source Converter	\$15	Sketch Plus	\$ 125
CorelDraw V1.0	\$295	Source Editor	\$ 5	Software Converter 1.0	\$ 125
486SX V1.1	\$295	Source Editor	\$15	Source 1.0	\$ 15
Source Converter	\$ 95	PC Synthesizer II	\$ 35	Softy	\$ 35
Laptop II	\$195	PC Tech Setup V1	\$ 45	Profitek Windows	\$275
Laser 1.0 V1.0	\$295	PC Tech Setup V2	\$15	Profitek 2.1	\$200
Laser 1.0 V1.0	\$295	Printer Plus	\$ 75	Printer V1.0	\$ 125

*Prices & specifications subject to change & differ according to lot

PageMaker 4.0®



An Innovative
Approach to
Apple® Macintosh™
training

What makes our training unique?

- Interactive multimedia for faster, more effective learning
- Design, layout, and desktop-publishing principles
- Take-home review worksheets and companion design guide

Thursdays until August 15

For more information, please call:



**INFOMAX
COMPUTERS**



1260 Hornby St., Vancouver, B.C. 688-0696

Novell Ships Network for SAA

PROVID, UTAH, JUN 14 (NR)—

Novell has announced that it has begun shipping Network for SAA Version 1.0.

Network for SAA is a network operating system which allows Novell protocols to communicate with IBM mainframes or AS/400 host computers. Users can also utilize host-based network management, database and office automation applications.

According to Novell, Network for SAA is implemented as a set of software loadable modules. A specific application might be for sales or resource locations to run Network for SAA along with file, print, database or other network loadable modules on the same server. Users of Network for SAA will enjoy reduced costs by eliminating the need for a dedicated gateway computer, Novell officials said.

Novell claims to have received "very positive feedback" from clients undergoing testing of the product.

Security features of Network allow managers to restrict access to specific users or groups using simulated Network mode. For example, a user could be limited to a specific period of time they can spend on the system by setting up user file with expiration dates. Additional controls can be set to allow user access from a specific workstation only or denying access to a user after normal business hours. Access can also be limited to specific hosts.

Network for SAA has many of the same features as Network V3.11, such as disk encryption, post-office-style notification, duplicate directory structures and file allocation tables, disk mirroring, and transaction tracking. There is also an interface to NetWare, which allows network administrators to migrate Network servers from the host computer.

BYRON LEE

U.S., Canada to get cellular link to Japan



ENGLEWOOD, COLORADO, JUNE 6 (NR)—GS West, Rogers Canada, and Daini Densetsu Japan will team together on creating a roaming service for cellular telephone customers traveling to Japan and the United States.

Cellular telephones in the U.S. and Japan are, at present, technologically incompatible. Under the agreement, DDI customers making the U.S. would pick up a U.S. West telephone at a DDI office

before departing; those return it after their stay and pay no return charges, which DDI will cover in U.S. West. The same process will work in reverse, and in Canada through Rogers. Daini Densetsu said it plans to integrate the service by October. Daini Densetsu said it will also promote exchanges of personnel and knowledge with US West.

Contact: DDI West, St. Louis, 314-540-0134

AT&T Expands Service To Canada, Singapore

ANNARIMA, CALIFORNIA, JUNE 6 (NR)—AT&T says it will introduce Satellite Digital Intercontinental Services to Canada in July. Satellite Digital Intercontinental Service will then be offered in 12 countries. It launches dialing-up digital base to up to 56,000 bits/second and for full transmission of data or for video conferencing.

AT&T wants to expand the service to 48,000 bit/second lines over the next year. The whole thing is subject to FCC

approval, and all calls must start in the U.S. Two lines are necessary for two-way video calling, but only one line would be needed for digital radio broadcast from AT&T and as a point-to-point. The service would be used for "burst" data traffic like that used in credit card authorizations. Compression could also put up to 11 conversations in a single digital line, making it an attractive adjunct to lower lines.

Contact: AT&T, Richard H. Cohen, 214-444-7444



**PRICES TOO LOW TO
BE ADVERTISED!!!**

Sizzling Summer Sale
286/386/486 Systems at Low Low Prices

EXAMPLE:

**486-25 for under \$2000
386 system for under \$900**

- all with 45MB Hard Disk, HD Floppy, 101 Keyboard,
14" Flat Screen Mono Monitor, Joystick/Printer/Mouse Connector

**PEEP
COMPUTER
SYSTEMS LTD.**

4379 FRASER ST.
Vancouver
872-7337

CELLULAR PHONES
CANTEL
@PROVID-AGENT

STORE HOURS: MON 12 PM - 6 PM TUE - SAT 10 AM - 6 PM

Handy-size Global Navigation System Debuts From Sony

TOKYO, JAPAN, JUN 30 (NS)—Sony has developed a portable device to locate just a position on the globe. Called the Portable GPS Receiver Function, it weighs only 900 grams (1.9 pounds) and is small enough to conceal around. It measures 10 x 17.5 x 3.5 cm. It will be sold at 154,000 yen on July 1.

The gadget locates its current position using two or three space satellites called Shiro, which were launched by the U.S. Defense Department. The device can locate one's latitude, the altitude, and the navigational speed. This device can be used for sailing, fishing, diving, gliding, mountaineering and hiking. It can also be installed in a car as a navigation.

Sony will also release the GPS soon, which it says can be located only a

personal computer through an RS-232C port. This system is designed to support its transportation items. Japanese car makers Mazda and Honda, immediately, have developed their own GPS system and have installed it on their cars for personal customer use. Pioneer has developed a GPS system with a 4-inch LCD and CD-ROM-based area maps. Consequently, GPS systems are seen as the next technology wave in Japan.

Currently there are 15 satellites floating in orbit. Since more satellites are expected to be launched and go into operation by 1993. With these satellites, one's position should be locatable practically anywhere on the earth.

Contact Sony at 1-344-22901 or 1-3-344-2301.

Japan: NTT Laying Phone Cable Capable Of TV Transmission

TOKYO, JAPAN, JUN 15 (NS)—NTT says it will lay out powerful optical fiber cables which can be used for telephone lines and cable television (CATV). The cables can be used for high definition TV.

NTT's new fiber cable has an amazingly large optical capacity. A single optical cable can transmit the broadcast programs from a maximum of 3,000 to

4,000 TV channels simultaneously. It will take at least several years for NTT to complete the construction of these optical fiber cables. But the new fiber cables are expected to encourage CATV broadcasting, which is just getting started in Japan.

NTT seems to use these optical fiber cables primarily for TV programs. NTT has already developed powerful TV phones for the consumer market. The firm has

Continued on page 29



COMPU AGE

9 Years of Computer Experience...

Need We Say More ?!

HEAD OFFICE
#510-8380 Viking Way, Richmond,
Tel: (604) 276-8228

BURNABY BRANCH
#100-1100 1st St. W.
Tel: (604) 296-6400

KINGSTON BRANCH
#100-1100 1st St. W.
Tel: (604) 436-7041

PRINCETON BRANCH
#100-1100 1st St. W.
Tel: (604) 688-0821

PHASE 1 SYSTEMS CORPORATION

Horizon Systems

Base Base Systems (Base)

17" Offshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")

386SX-33MHz	\$649
386-33MHz	\$949
386-33MHz (16MB)	\$1099
386-33MHz (32MB)	\$1299
486-33MHz x 1MB cache	\$1349
486-33MHz x 2MB cache	\$1449

NEW HORIZON

Base Base Systems (Base)

17" Offshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")

386SX-33MHz	\$649
386-33MHz	\$949
386-33MHz (16MB)	\$1099
386-33MHz (32MB)	\$1299
486-33MHz x 1MB cache	\$1349
486-33MHz x 2MB cache	\$1449

Horizon System Packages

17" Offshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")
17" Onshore Intel Pent. 100MHz (12.5")

386SX-33MHz	\$649	386SX-33MHz	\$649	386SX-33MHz	\$649	386SX-33MHz	\$649	386SX-33MHz	\$649
\$1749	\$1849	\$2099	\$2249	\$2749	\$3149				

MONITORS & VIDEO CARDS

Monitors

17" Offshore Intel Pent. 100MHz (12.5")	\$649
17" Onshore Intel Pent. 100MHz (12.5")	\$949
17" Onshore Intel Pent. 100MHz (12.5")	\$1099
17" Onshore Intel Pent. 100MHz (12.5")	\$1299
17" Onshore Intel Pent. 100MHz (12.5")	\$1349
17" Onshore Intel Pent. 100MHz (12.5")	\$1449

Video Cards

17" Offshore Intel Pent. 100MHz (12.5")	\$649
17" Onshore Intel Pent. 100MHz (12.5")	\$949
17" Onshore Intel Pent. 100MHz (12.5")	\$1099
17" Onshore Intel Pent. 100MHz (12.5")	\$1299
17" Onshore Intel Pent. 100MHz (12.5")	\$1349
17" Onshore Intel Pent. 100MHz (12.5")	\$1449

OTHER CONFIGURATIONS AVAILABLE ON REQUEST

Hard Drives

17" Offshore Intel Pent. 100MHz (12.5")	\$649
17" Onshore Intel Pent. 100MHz (12.5")	\$949
17" Onshore Intel Pent. 100MHz (12.5")	\$1099
17" Onshore Intel Pent. 100MHz (12.5")	\$1299
17" Onshore Intel Pent. 100MHz (12.5")	\$1349
17" Onshore Intel Pent. 100MHz (12.5")	\$1449

Accessories

17" Offshore Intel Pent. 100MHz (12.5")	\$649
17" Onshore Intel Pent. 100MHz (12.5")	\$949
17" Onshore Intel Pent. 100MHz (12.5")	\$1099
17" Onshore Intel Pent. 100MHz (12.5")	\$1299
17" Onshore Intel Pent. 100MHz (12.5")	\$1349
17" Onshore Intel Pent. 100MHz (12.5")	\$1449

Math Coprocessors

17" Offshore Intel Pent. 100MHz (12.5")	\$649
17" Onshore Intel Pent. 100MHz (12.5")	\$949
17" Onshore Intel Pent. 100MHz (12.5")	\$1099
17" Onshore Intel Pent. 100MHz (12.5")	\$1299
17" Onshore Intel Pent. 100MHz (12.5")	\$1349
17" Onshore Intel Pent. 100MHz (12.5")	\$1449

MAIL ORDERS WELCOME OVER \$100 PRODUCTS AVAILABLE

VISA
By Charge or A/C

4829 E. Georgia St., Burnaby, B.C.

Please Call for Price Updates

CAMEL

Tel: 291-1558 Fax: 298-5126 Cell: 644-2152

OPEN: Mon-Fri 10:00AM-6:00PM Saturday 10:00AM-5:00PM



Smarter Buyers Always Ask About...

- * How long have you been in business ? * Floppy disk Drive - What Brand ?
 * Harddisk - Voice Coil ? How Fast ? * Memory Chips - ? n-Sec. etc.

Go For the Smartest !

Ask One More Question

==> Would You, or Even Your Computer Supplier

Be Able to Reach the Motherboard Manufacturer ?

You HAVE TO HAVE ITS INFORMATION: Phone#, FAX #, Address, etc.

Why ? Because it IS extremely important for
 your computer future enhancement, modification, upgrading....

CCS 386DX/486EISA Computers With Canadian Designed 8-Layer Top-Quality Motherboard

Will Clear Out All the Headaches From :

- System Hang-up due to bad connection with low quality socket/slot,
- Register Level incompatibility due to lack of direct technical support from the motherboard manufacturer,
- System Freeze due to overheating after long running time,
- Electromagnetic Interference due to too dense circuitry traces on low cost four-layer motherboard surface,
- Difficulties on executing new software programs due to no availability of updated software drivers/utility programs/interfacing solutions from motherboard manufacturers from time to time.

Before You Buy A 486, Do You Know That There Are
 Two Types of 486 Computers: **EISA** and **ISA**?

CCS EISA-4486 33MHz System

OS/2: Intel 486 CPU, Phoenix BIOS, Canadian 8-Layer Motherboard, RAM Upgradeable up to 64MB. See Full-Featured 386/486 EISA/ISA Book, Two ISA Slots, Scores for Value 4187

\$3,799.00

(If 25MHz, \$3,199.00)

CCS 386/33MHz Cache System

Canadian Designed 8-Layer Motherboard, Phoenix BIOS, Intel 80386-33MHz CPU, Intel 80949 Cache Controller with 256Kbit Caching Memory

\$1,699.00

CCS 386/25MHz System

Canadian Designed 8-Layer Heat Radiator Motherboard, Unswapped Phoenix BIOS, Intel 80386-25MHz CPU, with 640K and 800K South Gate Caching Memory

\$1,349.00

CCS 386SX/20MHz System

Canadian Designed 8-Layer Motherboard, Unswapped Phoenix BIOS, RAM Upgradeable to 64MB, With Socket for 80287SX, Eight Slots

\$1,149.00

CCS 286/20MHz System

\$ 729.00

CCS 286/12MHz System

\$ 649.00

All Above Systems include:

- 1MBx2 RAM installed
- 1.2MB Floppy Disk Drive
- 40MB/20MB Harddisk
- 100% 1:1 Controller
- V/D Ports
- 12" TTL Amper Monitor
- Enhanced 101-KeyBoard
- Serial Postprint Cable

Detailed Technical Spec Brochures
 Performance Index Compared to Named Brands
 & End-users' Reference Available

Prices Subject to Change without Notice

WHY SHOULD YOU BUY FROM CCS?

The Best "Price-to-Performance" Ratio and

Professional After-Sale Technical Service

Computer and Communication Systems Ltd.

1235-1237 Nanaimo St. Vancouver V5L 4T5

Ph: 251-3588 FAX: 251-5125



backed with Matsushita Electric — Matsushita is manufacturing the TV phones and both firms are selling them.

In other news, NTT has developed a three-dimensional topographical color color play for TV phones.

The company has incorporated a technology called Interlaced Area, which is a circuit on both sides. The lens has an LCD on the back. It projects an image which looks three-dimensional from 40 viewing angles. The display is 12.5 inches large, which is quite sizable for an LCD.

The same technology of this display was developed a year ago, but has been

improved. The previous version required a person to move their head slowly in order to perceive the 3-D effect. This new display is said to be more flexible and easily viewed.

NTT's three-dimensional displays designed to be used in computers, TVs, and TV phones. NTT has already developed a lens screen of a three-dimensional TV phone. With this color display technology, 3-D viewing does not require the use of special 3-D glasses, in fact lens itself built since the 20s.

Contact: NTT, #1 1-5955-5555

UNIX

Unix System V Release 4 Shipping From Interactive

SANTA MONICA, CALIFORNIA, JUN 12 (ENR)—Interactive Systems announced at its developers' conference held in Unsumed City, California (the location of Unsumed Beach), that it has begun shipping Unix System V Release 4 for the Intel 386, 486 platforms.

The 386/486 are the chips used in the top-of-the-line IBM personal computers.

The company says that due to its first shipment was its appointment as Principal Publisher of UNIX by Unix System Laboratories (USL) and last order this year. Interactive also announced shipment to and support of the Intel 386/486

customers' base as well as delivery for its first 386/486 releases and maintenance, and a new developer program to support its Unix System V environments.

Interactive Systems is a Seattle company that distributes itself as a supplier of Unix software products, forward software to hardware and consulting and development services in the Unix industry and open systems market. The company is headquartered in 10000 Greenwood Avenue, Seattle, Washington, 98104. (206) 348-7711. Outside the U.S. call (313) 455-6666.

Computer/Software/Interactive Tel 213-8873-8848 Fax 213-8873-3334

Lotus releases 1-2-3 For Sun SPARC Systems

CAMBRIDGE, MASSACHUSETTS, JUN 11 (ENR)—Lotus will ship its 1-2-3 Lotus 1-2-3 for Sun SPARC Systems version 1.1, \$995, an upgrade which the company says integrates Lotus 1-2-3 as a tool directly into the product.

The new version of the 1-2-3 is a Windows and Lotus Release, a single integrated application that handles data flow and data directly into 1-2-3. Lotus Release is intended to enable financial, marketing, portfolio managers and analysts to connect and commercial banks, law firms, insurance, and management services to use real-time data in a spreadsheet environment when making investment decisions.

Lotus Release, also available in 30 days for a price of \$1,695, can be purchased from Lotus Release (Business Partner Release). The releases include 1-2-3, Lotus, LIP, LIP, LIP Consulting, Inc., Lotus Systems Group, Ltd., LIP/3 Lotus Systems Incorporated, Lotus Systems Corporation, Macroscopic, Quantum Systems Inc., Business Information Systems Inc., Business Information Systems Inc., and Lotus Release Software Systems, Inc. Lotus Release which offers the development of their servers are available directly from Lotus for \$20,000 and can be used to run an unlimited number of local servers.

Commenting on its use of Lotus Release, Bruce Kohn, the chief executive officer of LIP/3/Systems, said, "Lotus Release will be a highly integrated part of LIP/3/Systems' trading system product line. This will be a high-performance, real-time spreadsheet that the

spreadsheets immediately without any intermediaries in other real-time trading. Lotus will also offer the addition of LIP/3/3 to its proprietary functions and other third-party applications to its existing core financial products."

Another Lotus Release Software Systems Inc., as part of the Lotus Release, demonstrated Release on its Lotus Release Workstation system. The firm's president, Vito Rasmussen, commented on saying, "This is not just an enhancement to a spreadsheet. This is a powerful general tool." Lotus will also have the "free of administration, saving low data in real-time portfolio," "the release" Lotus is the first company to have a real-time spreadsheet computing. "Release" predicted that Lotus could sell five hundred thousand of the system in three years.

Gerard Marx, senior sales and marketing executive for LIP/3 Partners, agrees with the success of Lotus Release. First Boston Corp., Goldman Sachs & Co., Morgan Stanley & Co. Inc., Salomon Brothers Inc. and Citicorp Securities Inc. have all endorsed the Lotus combination, saying, "Lotus did what we needed, and the spreadsheet combines the hands of people who make the decisions on making money and handling portfolio. The Lotus product will provide LIP/3 users with significant advantages including speed, flexibility and more cost-effective operation."

Contact: Vito Rasmussen, The Lotus Group (LIP/3), 417-461-7900, 40000 1st Street, LIP/3 Partners, Inc., 415-388-0888, Lotus Inc., 415-388-0888, Salomon Brothers Inc., 415-388-0888, Citicorp Securities Inc., 415-388-0888.



COMPUAGE

HEAD OFFICE

#110-4326 Viking Way, Richmond, B.C. V6V 2A4 Tel: (604) 274-4326

CORPORATE EXPANSION

MANAGER

Due to our national corporate expansion, Compuage is looking for experienced managers with a solid background in PC hardware and software. Managers must be self-motivated, have good organizational skills, and the ability to train new staff. If you are a career oriented person, with a positive attitude and a true desire to grow with the company, this position is for you. Profit sharing programs for the right candidates.

SALES PERSON

Compuage has immediate openings for qualified and motivated inside sales position. The position is full time with excellent income potential.

Please forward resume to the head office. All resumes and interview in strict confidence.

Lowest Price Ever! SHARP 386 Laptop

386 Power - 120MB Capacity

- 25MHz 386SX CPU
- 2MB RAM
- 120MB Hard Drive
- 1.44 3.5" Drive
- VGA Graphics LCD
- 2 Serial, Parallel & CBI Ports
- Rechargeable Battery - 1200mAh
- 300 x 400

MSRP \$5495

Special Sale \$3295

This is an amazingly good quality machine for the price.



Available only at

872-3225

MINITRONICS 872-3226

1986 Kingsway at Victoria Drive, Vancouver

Sharp Authorized Dealer

Offer requires knowledge of various applications. Microsoft, MS-DOS 5.0 and MS-DOS 5.0 Upgrade are registered trademarks and Windows is a trademark of Microsoft Corporation. © 1991 Microsoft Corporation. All rights reserved.

Introducing the new Microsoft® MS-DOS 5® Upgrade. No PC should be without it!

It fires up to 621K* of conventional memory, so your PC can tackle the largest, most sophisticated applications with ease.

And that, of course makes MS-DOS 5 the perfect way to realize the full power and glory of Microsoft Windows!™

But wait, there's more. MS-DOS 5 has

built-in features to make your life even simpler: on-line help to take the mystery out of DOS, a full-screen editor with pull-down menus, task swapping with a single keystroke, file searching, and an undelete command, to name just a few.

As if all that weren't enough, the MS-DOS 5 Upgrade is the most thoroughly tested software product in PC history.

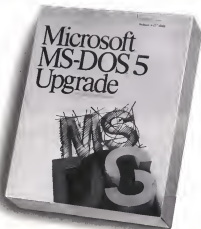
Consistently rave reviews from over 2,000 test sites.

To see what everyone's raving about, visit your nearest software dealer and see for yourself.

But hurry. The new MS-DOS 5 Upgrade has so much going for it, it's sure to go fast.

Microsoft+

Buy One, Get 621K Free.



Adobe Intros Software For Unix Postscript Printing

MOUNTAIN VIEW, CALIFORNIA, JUN 18 (ENR)—Adobe Systems has introduced new software for Unix Postscript printing.

The package consists of a group of programs that enable applications to communicate with and print Postscript printers, laser printers and imagemasters.

Transcript 3.0 is an upgrade from version 2.1, and can convert standard Unix file formats into Postscript language files, so they can be formatted and printed on Postscript output devices. It includes communications software for serial (RS232C) communications using a Frame printer, can handle print job business forms, page accounting and other functions, and is fully integrated into both the Unix and System V Unix printer spooling environments, Adobe said.

Transcript 3.0 is expected to be available from June 19 onwards. Upgrade pricing and availability information is available from the marketing managers directly with the exception of users who purchased Transcript 3.0 from Sun who should call Adobe directly.

Contact: Frances Allen, Adobe, Tel: 415/946-1851, Fax: 415/941-3200.

X/Open Spec Adapts Phillips' CD-ROM To Open Systems

MIDDEL FIFE, CALIFORNIA, JUN 17 (ENR)—Phillips, the Dutch electronics company, has used X/Open's Fast Track procedure to adapt Philips' CD-ROM technology to open systems. Larry Lerner, spokesman for X/Open, told Newsbytes that it is "controversial that will be well" from Philips' specifications because of the ability to make CD-ROM technology.

Fast Track is a program established by X/Open that lets outside companies or organizations develop specifications for compliance to X/Open for possible adoption into X/Open's Common Application Environment (CAE).

Lerner told Newsbytes that Philips simply took time saving technology and submitted it to X/Open for inclusion in CAE. It was accepted and is now part of the specifications, he said.

The new specification developed by Philips for CD-ROMs allows applications in open systems to have access to information stored on ISO 9590-compliant CD-ROMs.

According to Phillips, the new specification offers several advantages to users. Application developers can have portable applications for open systems that can use CD-ROMs regardless of the system. Without the X/Open CD-ROM Support Component (SCD), obtaining such information would be difficult for all implementations of CD-ROM file systems. Additionally, system administrators can grow more users to CD-ROMs as needed, and information providers can produce CD-ROMs that will be usable on open systems from different publications.

Contact: Jeff Hovner, SCD, 415/521-5902.

Development Tools for A/UX

NASHVILLE, TENNESSEE, JUN 18 (ENR)—Apple Computer announced at the UNIX/2 Technical Conference and Exhibition a new set of software development tools for A/UX, Apple's version of the Unix operating system for the Mac. The new A/UX Developer's Tools allow developers to create Macintosh, Unix and Windows system software, as well as "hybrid" applications that incorporate Macintosh and Unix functionality in one environment.

A/UX Development Tools use the same development tools available now for Macintosh, with Unix tools. A/UX users can run Macintosh, Unix and Windows system applications simultaneously within a window on the Macintosh desktop, Apple said. Third party products also allow users to run Mac and MS-DOS applications as well.

The tools available in the new kit are the Macintosh Programmer's Workshop (MPW) and the MPW shell, Compiler, C++ compiler, Object Pascal compiler, assembler, resource editor, source debugger and assembly language

debugger and an MPW tool that runs Unix commands from within the MPW shell, Apple said. The MPW environment A/UX lets programmers create Macintosh applications while taking advantage of the Unix software development environment, the company said.

The new C++ compiler allows the developer to call the Macintosh toolbox to run Unix applications, and use the toolbox to display Macintosh windows and windows. This allows the developer to create the appearance of a Macintosh application from a Unix object file, Apple said. Contact: Apple Press, Apple, Tel: 408/54-0400, Fax: 408/54-0400.

\$799
Your typical dot matrix printer.

\$799
The new Apple StyleWriter.

Which price looks better to you?



The new Apple StyleWriter printer gives you crisp, laser-quality reports, presentations and a reason for about

the cost of an ordinary dot matrix printer. The blacks are rich. The lines are precise. And with a resolution of 360 dots per inch, it delivers the sharpness and impact you could previously only get with printers costing thousands more.

It's small enough to fit on any desk. It's quiet. It's convenient. And it incorporates TrueType, Apple's new font technology which lets you scale and pinch characters precisely from the smallest footnote to the largest headline.

But, most important of all, it's from Apple—designed so now you can get everything out of a Macintosh® computer that Apple built into it. Not only the power to look your best. The power to be your best.  Labeled Smart.

Size 140
4664 Loughland Way,
Burlingame, NC
919 373
209-1861

Size 140
2211 Hiram Street
Huntsville, NC
919 264
685-8227

Size 180
702 Kensington
Victoria, BC
919 182
340-9990

ADVANTAGE
Computers Ltd.



Multimedia

Desktop Video

by Graeme Bennett

Full-motion digital video is coming to your PC. In the years since your last trip to the majority of video-computing users, are still wondering why.

The name full-motion, in this context, does not necessarily refer to full-motion/full-motion images, but rather to an effect where in watching a motion picture on a window on your computer's screen.

The applications for this technology to desktop systems are beginning to emerge, but obvious restrictions are multimedia publishing and storage, transmission of video with video over standard phone lines, and more. In many cases, these are more than video, and more.

Although most full-motion digital video systems require compression, the fact remains, some standards are beginning to emerge. Microsoft, Lotus and IBM are, of course, initially behind most of the digital video systems. The specifications for digital video systems are beginning to emerge, but the fact remains, some standards are beginning to emerge. The fact remains, some standards are beginning to emerge.

IBM has shown real-time software decompression of "limited motion" (15 frames per second) video in a small-scale portable video system. Microsoft has introduced a Multimedia PC specification that calls for a 286 or greater, VGA graphics and CD-ROM drives.

Intel's Multimedia PC (MPC) specification (MPC9600) calls for a 386 or greater, VGA graphics and CD-ROM drives. The fact remains, some standards are beginning to emerge.

Intel's Multimedia PC (MPC) specification (MPC9600) calls for a 386 or greater, VGA graphics and CD-ROM drives. The fact remains, some standards are beginning to emerge.

I use the IBM system, which has a great deal of compression. In many cases, these are more than video, and more.

Intel's system is based on licensing the technology to third parties, for application to the CD-ROM, and more. In many cases, these are more than video, and more.

PC-based digital video systems typically require special hardware and software to digitize, compress and store the image when it is shot. Once stored, however, the film can be viewed and displayed in real-time at 30 frames-per-



second on a standard Windows PC with VGA, 486 system, the quality is not yet what you'd find on "hard copy," but with a storage appetite of 100MB per hour of video, it's a hard drive for the time being.

Although you might think that with these fully software requirements, digital video must compare to the cost of video tape, many developers are not long on way to compare images enough to make real-time decompression, compression and video possible from CD-ROM, which, in the recording industry, has proven, has at least the potential to produce comparable results. At the above-mentioned storage rates, a 48MB/s CD-ROM-based movie could be over 12 hours long!

Apple, in fact, has come up with an even better, somewhat video management system, which is called QuickTime. Designed as an extension to its new System 7 operating system, the current development version of QuickTime is also compatible with any color-capable Mac running System 6.05.

The company says it wants to move to do to work with video and other dynamic media in real time. In many cases, these are more than video, and more.

SuperMac Technology, a leading Apple graphics professional, has been showing a Mac-based software called "playback" system. In many cases, these are more than video, and more.

Arriva

Commodore-Amiga has officially adopted Amiga Hardware/ANSI specification, and most Amiga "desktop video" applications can now use and load the file format. The Amiga is the only system I've seen that can play back full-motion, full-motion video with sound, with anything resembling motion animation, on the standard hardware configuration. In many cases, these are more than video, and more.

Movies on CD?

Because, even after compression, digital video files tend to be huge, they are a natural for distribution on CD-ROM. Unfortunately, the slow speed of these access presents some technical barriers. In particular, most systems of information off of a CD-ROM, it is necessary to decompress the data in real-time. Faster computers can, of course, decompress data more quickly, but at the moment, even the fastest machines can only decompress and display a small full-motion image (or a comparatively lower-resolution image) at 30 frames per second. In many cases, these are more than video, and more.

Compression

Most compression systems today are based on an emerging standard called JPEG, named for the Joint Photographic Experts Group that devised it. JPEG is based on a form of compression, meaning that the algorithm changes and reduces the image data when it comes to compression. In many cases, these are more than video, and more.

At maximum compression, most data images of images are acceptable, but at lower rates (i.e., 10:1 or 15:1), JPEG-compressed images look very similar to the original.

However, JPEG is not optimized for full-motion video, and does not, for example, take into account frame-to-frame redundancy. Another standardized program, called MPEG (the "MP" stands for motion picture), which is technically a method of run-length encoded data compression, should prove to be more effective. In many cases, these are more than video, and more.

For more information on JPEG and MPEG, consult CD-ROMs Multimedia and 486-486-486.

Grabbing Frames

With the increasing popularity of computers and other home video technology, what can you do if you want to get your computer into the act?

If you want to capture an image from a video source, you need a frame grabber, sometimes known as a video digitizer. These are available for every type of computer and budget. In many cases, these are more than video, and more.

Here, is a non-comprehensive list, as one of my friends:

PC (x86): Camtastic
Camtastic
Camtastic
Camtastic
Camtastic
Camtastic
Camtastic
Camtastic
Camtastic
Camtastic

Multimedia

Editorial by Graeme Bennett



Multimedia. I have been called the multimedia editor under the integration of all these things you were asked to accept, the editors in search of a market. The multimedia people can agree on what it is to wonder the market means.

One common explanation (based about it) that multimedia means a combined team for the fusion of video, audio and computer graphics. Others (usually from the educational side) will state that multimedia is all about interaction. They prefer the term "interactive media." In many cases, these are more than video, and more.

Of course, I could be just as well describing advertising, the latest block-buster flick, or a dozen other futuristic products. The difference, of course, is that with a desktop computer (and several) projects. An important point of multimedia is that you can't just copy and paste. In many cases, these are more than video, and more.

Just as some of us prefer to be editors, some of us prefer to be multimedia people. In many cases, these are more than video, and more.

Multimedia

GLOSSARY OF TERMS

Video Cards and Devices

Types of video functionality on several categories (VGA and beyond):

ADD-on-board Video

Apple IIc is the popular Apple IIc graphics card (400,000 color) in 256 colors in 640x480 pixels (256K), with over 11 million colors.

IBM-based Video Display Card

Control S, Control S-Video is the standard card to control expansion from, and according to consumer reports, IBM-based cards are available and available from the manufacturer in a standard price. It is used for 100% of the cards for 100%.

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

in, ColorSync and Graphics (IBM) and other 17 and 19-inch monitors, respectively, are able to create digital optical effects such as images that are, drawn as they are, computer-generated, color-coded images to create a 3D effect. IBM-based monitors (IBM) are able to create a 3D effect. IBM-based monitors (IBM) are able to create a 3D effect. IBM-based monitors (IBM) are able to create a 3D effect.

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

AUDIO PRODUCTS

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

Standard Video is a video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green). This is a standard video signal in which the color information is carried on a single channel (usually red) and the other two channels (blue and green) are carried on a single channel (usually green).

WE DO Mind Blowing STUFF.

PC Multimedia Production:

Desktop Video, Electronic Presentations, Engineering Simulations, Interactive Kiosks, Demo Disks, Trade Shows and Broadcast Quality Video

Technical Services:

3D Animation, Scanning, Image Processing, Compression, Programming, Record to Videotape. The experts in Multimedia on the IBM compatible platform.

VISION:
Multimedia, Inc.

Do it with VISION

Video Presentations Inc. 200-2100 Burnard Street, Vancouver V6Z 2H6
(604) 682-4800 FAX (604) 682-2700

Success is not just
Demanding the Best...
it's Getting the Best



For PC • Workstations • Mac

Monitor Size

The Award-Winning
IDEK 17" Flat Screen Monitor (1024 x 768, non-interlaced)



"A reasonably priced monitor with easy adjustments, the IDEK MF-5117 delivered one of the brightest and sharpest pictures in this market!"
—PC Magazine March 26, 1990

Canadian importer

Western DURA-TECH Inc.
TEL: 931-1066

What It Does

The VideoWindows card is a true computer video display board. It works with your existing display board to place a video signal onto your computer monitor. It accepts as input any NTSC, PAL, or Super-VHS signal and is accompanied by video signal. It then passes the video signal through the PC display adapter to the PC monitor, along with the regular PC text and graphics. The video signal can be displayed in the DOS level in a quarter screen and is completely independent of anything else on the screen. It can also take over Microsoft Windows 3.1, where you can size, move, maximize and minimize the live video and text. Also, within Windows, you can "Zoom-Align" the video and use the full range to run of laser formats. Supports 640x480, Windows 386/486 and a native format called VHS (12 bit). This makes the VFW card an excellent video capture board (within the capture capability).

The software also allows for the control of external devices like video laser disc players and VCRs. Now, this brings us to a problem which is related to video or computer software control of video, but is a very technical device. It is not possible to software-control a computer-grade video laser disc player, camcorder, or VCR. However, VideoWindows does provide control of certain laser disc players and VCRs, but this is not for the time-of-time (or post-time) look. In other words, you can input a camcorder or video laser disc player and work with your PC monitor. But there is no software control over the camcorder itself. This cannot clear your name and stop, pause, fast-forward or reverse the camcorder. To gain full control of such devices, you need special equipment, such as HDV/HDVCR or Sony's Hi8 mini video laser disc player. So, use a series of accessories that refer to an application developed with me, America's Toolbook. You will need to spend a few moments of money on peripheral equipment. On the other hand, if your intention is watching the video or movie while you're seated in a room, these two boards are all you need.

The Super TV Tuner

The TV Tuner is an analog board which takes an input a standard cable signal (such as your TV at home), and allows

software control to change channels, adjust volume, turn the color, etc. Although it comes as a standard product, it really doesn't give you much by itself, since to watch TV, you would have to hook it to a TV set. The TV Tuner's real use is as a companion to the VideoWindows board. The output from the Tuner at a standard video signal and a standard video signal (RGB/RGB). If you plug it with the VFW card, the output of the tuner is connected to the output of the VFW. Here's where the multiple inputs of the VFW come in. Although multiple simultaneous outputs are not supported, you can switch between a number of inputs from within Windows 3.1. One source could be the TV Tuner, another a VCR, another a laser disc player, etc.

The features of the TV Tuner are 128 channel capability (13 channels of VHS, 48 channels of CHRF and 64 channels of GATV) computer controlled channel selection and fast analog-to-digital conversion. It also includes a programable power transistor. It is based on a USA Cable TV Tuner, NTSC video and standard video output.

Summary

There is something quite thrilling about watching live video on a computer monitor! Being able to click on an icon and watch a video appear with a mouse like *Black Russia* playing, downloading files from a BBS, looking numbers into a spreadsheet, all at the same time—great stuff! However, since 90% of the American households already have TVs, and most offices don't have cable connections (even your local newspaper who goes to watch TV at work), these products are more suitable for other applications. Some examples might be educational/training systems, public and corporate kiosks or perhaps low-cost workstations for broadcast TV studios, post-production facilities or international office production.

Finally, these products enabled and helped an advertiser and did not require a market oriented to run. With such boards reportedly on the horizon, these boards have potential in many a wide variety of applications, many of which may not have been thought of yet.

Special thanks to a frequent contributor to the Computer User for other great video recording articles in Windows 3.1 (24-26).

TROUBLE WITH DATA ENTRY? LET US HELP YOU

- ▶ Through our SCANNING process we will correct your entire text or image into computer files.
- ▶ Everything from names and letters to books and magazines can be SCANNED in 1,000 characters and 1,000 lines of text in up to 100 characters per second.
- ▶ Text can be printed out in corrected double line 10 different fonts (Helvetica, Book Roman, Symbol, ASCII and many more).
- ▶ Other services include Electronic Forms, Labels, and programming.

BARBERSHOP/STREET VENDOR SPECIALISTS

- ▶ Industrial, Commercial & Personal
- ▶ 48 SYSTEMS IN EXTENSIVE PRINTER
- ▶ COLOR SCANNING/REPRODUCTION
- ▶ OCR SOFTWARE
- ▶ FLOW CHARTING

275-2800



Send form to: 285 The Shop
All order C.O.D.

the MULTIMEDIA SHOP presents...

a solution to your problems:

THE MEDIATOR

NTSC/PAL Professional Video Output From VSA and Macintosh...

Professional quality
computer graphics
to video conversion
on your desktop!

- Auto Scanning of Most Graphics
- Loopthrough
- Frame Grab
- User-defined Overlays
- Gamma/Sharpness Adjust
- Test Pattern
- Input RGB, Analog or TTL
- Output Composite or S-VHS
- Selectable 4:3/16:9

The First Affordable
Multi-Standard Interface

Set-Up In Minutes

\$3750

CONTACT SCOTTY HENDERSON FAX: 609-4347

Commercial Electronics Ltd

1325 Bayview St., Vancouver, B.C. V6Z 1Z7 Tel: (604) 683-5535

ZESNA
ELECTRONIC INC.

286-20 MHz

\$499
Guaranteed Price

True 80286-20 MHz SYSTEM

- 1 MB RAM Expandable to 16 MB on board
- 80286-20 Upgrade-Ready
- 1.2 MB 5.25" floppy Drive
- AT V/O
- Compact Case & Power Supply
- Enhanced Keyboard

DEALER INQUIRIES WELCOME

Call 1-800-1-800 Mywayway Way
Richmond, B.C. V6V 3V9
Tel: (604) 278-5151 Fax: (604) 278-5122



The Movie Editor is the stage where the backgrounded the Action painter. Movie paths for the prescribed course of an actor are created. In fact, the path options in Animation Works have a very unique feature that no other animation program that I'm aware of possesses. The path editor lets you use the options of creating a linear path, a curved path, a sample of different irregular paths, an

initial path and a gravitational path. What's particularly unique about the gravitational path is that you can also "suspend" the path of one object to another. So, if you have a plane, as they demonstrate how internal, which drops a bomb, the bomb descends as a path which is made up of a complex series which takes the velocity of the plane and the force of gravity into consideration. I

think that this feature, out for the most part of its platform base, is their offer to make animation possibilities for creating the appearance of various existing objects.

Several capabilities are hidden in any of your functions, and although, it supports the aspect of assets through the Apple (ANS) format, it doesn't offer the sophisticated asset editing capabilities of ADAnimation.

When an Animation Works offer a variety of stock illustrations, scenes and sets allow them to create their own custom scenes.

Illustrations that are included are created using a pen, the tracing page using image perspective and distortion or transforming figures. Both are combined with TV program in time and also which have doing path types—mainly to be used when available on the screen.

Export Animation offers the export from animation to three different formats when they are: QuickDraw, PICT, and PICT. This is a handy feature if you want to import any of your things into other programs.

Amplified software that provides a model viewer without animation. Frames are displayed as a table of frames with the relevant information about each frame below it. This page, usually to read in the frame, will also contain information in the frame. Instead of a simplified one shot frame, it allows the user to see a hard copy of the animation in order to focus on development and progress.

Similarities

Both programs may well run on a 2 MB Macintosh II, with a 4000000000 system although they don't say that. I suspect they would both run on a Macintosh on an SE with 4 MB of memory.

Neither program was tested using System 7, although the Professional version of ADAnimation promises to utilize some of the new features of System 7.

Both programs have comprehensive, well laid-out manuals, but neither have online help files.

ADAnimation package includes a somewhat odd document "The Principles of Animation". It is one of the best animated demonstrations on animation I've seen. Animation Works also has a good introduction, history and useful information in the beginning of its manual and also includes a video type demo in the package.

Differences

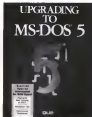
Animation Works doesn't support 32-bit color and isn't interactive. It doesn't have a Timeline like version of the entire cast of characters but it does have a Storyboard feature which the present version of ADAnimation doesn't have but the new one will.

ADAnimation doesn't have suitable animation capabilities and has somewhat less sophisticated Post capabilities than Animation Works in both of these areas.

Recommendations depend upon what you need. If you need to keep an interactive user interface with photo realistic color and superb sound, then ADAnimation is the clear choice. However, if you are looking for an interactive, better animation interface, why it includes acceptable sound capabilities in your presentation needs, then Animation Works might be a better choice.

Larry DePaulo is a Senior Computer Artist at Interactive Software Inc., a Boulder, Colorado Software Inc. is a leading international developer of entertainment software for the computer and video game systems.

Upgrading to MS-DOS 5 is easy when you're U S I N G Que®



For complete reference, quick reference, and quick starts to MS-DOS 5, look no further than Que books.

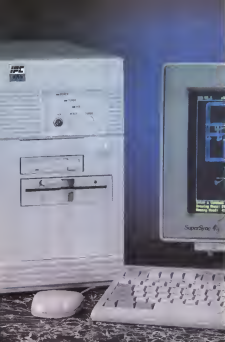
Watch for these and other Que titles at your local computer book retailer.

Call us for a free catalogue at
(800) 463-2318.

Upgrading to MS-DOS 5 0-89000-473-8	\$19.95
Que's MS-DOS 5 User's Guide Special Edition 0-89000-471-4	\$29.95
MS-DOS 5 QuickStart 0-89000-483-1	\$29.95
Understanding MS-DOS 0-89000-429-5	\$29.95
MS-DOS 5 QuickReference 0-89000-646-7	\$19.95
Watch File and Micro QuickReference 0-89000-499-4	\$19.95



Prices subject to change without notice. All products listed appear on the trademarks or registered trademarks of their respective owners.



Super Charged Mini Tower

IPC Introduces Affordable 33 MHz 486 Power in a Compact Package

It's here! Intel's screaming 33MHz processor in a space saving, sturdy mini tower case. At over twice the speed of similarly priced 386-33 machines, IPC's entry series 486/33 redefines affordable power.

The 486/33-33 combines a 64K SRAM Cache (expandable to 256K) and 4MB of RAM (expandable to 16MB on board) with the 486's integrated math co. and 8K internal cache. An ideal fileserver, it is test compatible with Novell, Unix, Xenix, OS/2, Windows 3.0, and all current ISA based applications.

Reliability is the key to the comprehensive IPC 3-yr Warranty. Our U.S. built mainboards use only the finest components and, before they leave the factory, every power packed IPC 486 computer is subjected to a rigorous 4 hour application testing and a full 48 hour burn-in.

For the name of your closest IPC dealer call our national distributor, 3D Micro at the nearest location and find out more about the nationwide onsite service on the Super-Charged IPC-486/33 Mini Tower.

The power hungry need never go hungry again!

IPC -486/33 Entry Series

Microprocessor	486
Operating Speed	33 MHz
SCSI Hard Drive	100 Mbit
Floppy Drive	1.2 MB
RAM	4 MB
Video Card	1024 x 768 VGA
Monitor	14" Colour VGA
Expansion Slots	one 16 bit, one 8 bit
Drive Bays	3 half height, two 3.5 inch

\$3999.00

Suggested Retail Price

3D MICRO
COMPUTERS

Vancouver

(604) 673-5890
Fax: 673-4552

Calgary

(403) 255-3500
Fax: 255-3509

Edmonton

(905) 484-8100
Fax: 484-5185

Winnipeg

(204) 773-9928
Fax: 773-9924

Toronto

(416) 494-5250
Fax: 494-5284



SuperStore

Computers



**Why Pay More
Elsewhere
for 100%
Same
Compu-Ware?!**

BUYER'S GUIDE

MS-DOS
2.11
486-33 25MB



**A typical micro-computer is
not a "MAGIC BOX", just
configured by some name
brand pre-built devices, as:**

Check the computer from inside out, part by part,
as long as they're the same model/brand,

WHY SPEND MUCH MORE

for just a fancier name plate on the front panel of the
computer case?!

**Don't let the fancy name plate fool you,
make your decision and
MINIMIZE YOUR COST FOR COMPUTERING!**

266/12 MHz AT
System
\$639

386SX/16MHz
System
\$889

386DX/20MHz
System
\$989

386DX/25MHz
System
\$1189

386DX/33MHz
w/640K/25MHz Cache
\$1389

* ALL SYSTEMS INCLUDE:

- 1MB RAM (expandable)
- 1.2MB/5.25" 720K Floppy Disk Drive
- 40 MB/288mb w/16-bit ISA Controller
- HD Card with 1 Fanless Serial Game Port
- High-Resolution 13" Active-TTL Monitor
- Small Footprint Case/300W power supply
- Enhanced 101-Key Keyboard
- *Customized configuration on request
- *One Year Parts & Labor Warranty

UPGRADE OPTIONS

- RAM (Per Mega Byte) \$79.00
- Add Floppy Disk Drive \$79.00
- (1.2MB/5.25" or 1.44MB/3.5")
- 16MB Hard disk \$159.00
- Mono VGA 14" & Card \$139.00
- Color VGA & Card \$209.00
- (\$40/\$80 16-bit 256K)
- 1624 *768 16-bit 256K Card \$209.00
- 9-pin printer \$179.00

**MS DOS
Ver 5.0
\$79.00**

with System Purchase

LAPTOPS

Mini 386SX/16MHz

- 486 \$3,499⁰⁰
- VGA board
- 286 Laptop

\$2,799⁰⁰

with 386/286/486

Super Special!

All Books & Magazines

15% OFF

PC Magazine only \$2.65

(PRICES SUBJECT TO CHANGE WITHOUT NOTICE)

MOTHERBOARD		MOUSE		FLOPPY DRIVE		14" VGA & 486		PRINTERS	
266-12	\$139	2400/16	\$79	1.2MB/5.25"	\$49	1024 x 768/28	\$279	1600x1200	\$179
266/12-16	\$179	486 Mouse	\$19	1.44MB/3.5"	\$79			1024 x 768/28	\$199
266/12-20	\$219	Mouse Pad	\$19	288K/5.1"	\$19			Office 200 pr	\$249
266-12	\$259			720K/5.1"	\$79			Printer 1000	\$49
HARD DISKS		CO-PROCESSORS		10" CARDS		14" VGA Adapter		MULTIMEDIA	
20MB/5.25"	\$199	40MB/288	\$279	4175 Card	\$19	2MB	\$19	Speaker Cable	\$7.99
40MB/288	\$279	80387/288	\$419	Serial Port Adp	\$19	4MB	\$19	Keyboard set	\$29.50
80MB/386	\$419	80387/386	\$419			8MB	\$19	Monitor set	\$49.99
100MB/288	\$549	133MB/288	\$549			16MB	\$19	VHS set, 1000	\$19.99
133MB/288	\$549					32MB	\$19	VHS set, 1000	\$19.99
						64MB	\$19	VHS set, 1000	\$19.99
						128MB	\$19	VHS set, 1000	\$19.99
						256MB	\$19	VHS set, 1000	\$19.99
						512MB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB	\$19	VHS set, 1000	\$19.99
						1GB	\$19	VHS set, 1000	\$19.99
						2GB	\$19	VHS set, 1000	\$19.99
						4GB	\$19	VHS set, 1000	\$19.99
						8GB	\$19	VHS set, 1000	\$19.99
						16GB	\$19	VHS set, 1000	\$19.99
						32GB	\$19	VHS set, 1000	\$19.99
						64GB	\$19	VHS set, 1000	\$19.99
						128GB	\$19	VHS set, 1000	\$19.99
						256GB	\$19	VHS set, 1000	\$19.99
						512GB			

where as part of the sales process, they will be unwilling to offer a little free screen when they make a smaller deal the next time. You want to be able to feel the custom programmer is in an unenviable position: your problem either goes just emptying your bank account. This is a good feeling you have to develop. Unfortunately, many custom programmers who are honest to a fault financially, their price may be cheaper but still they will be around to solve your problems next year in a good position.

Planning

No program can start or even be started without a certain amount of planning. If you receive a quote without at least one meeting and discussion, think to yourself: does the programmer know what I want or is he just going to give me what he thinks I do? The planning process is the biggest part of a custom program.

Another aspect of planning is the specification. If the analyst is willing to overlook the project without first producing a detailed specification you will have to wonder what your finished product will be like. Some analysts will change for the specification and some consider it part of the design team. When you receive the specification, read it through, as your product will be exactly as the specification states. If you forget to inform the analyst of a certain problem, chances your final result will be the opposite of what you are looking for. It is always more expensive to add a process to an existing program rather than write it in the first place.

Documentation

Have a look at the documentation for other applications that are using the writer. If you can read and understand the other applications from the documentation, then you should expect the same for the documents upon the new application. Not having to know the quality of the documents, ease of understanding is the measure of quality documentation.

Support

Get support arrangements as early as possible. Support arrangements will not be sure you know what you will receive, and how you will be paying for the support. There is no such thing as free support—you will pay for it, either in cash or by not receiving what you expect.

Bugs

All custom software will have bugs the first time out but usually there are fewer bugs in custom software than in commercial software. Because custom software is designed under customer conditions (that customer and software, there are fewer considerations and less chances for bugs. Be sure your contract covers the bug fixes in software which solve your needs.

Fee Types

There are two types of custom programming contracts, the hourly contract where the fee is based on the hourly charge, estimated to be many hours are spent on the contract, and a fixed fee basis where the contract is estimated on the beginning and the fee is fixed. If the programmer is not willing to enter into a fixed fee contract, find one who will. Usually you are paying for the programmer's expertise in programming. If the programmer is not sure of his own expertise and how long a project will take, why should you have confidence in their abilities? An open-ended contract is a blank check for the programmer, which is usually never-ending. A fixed fee contract is a fixed cost on the part of the programmer to finish the job.

understand on the part of the programmer to finish the job.

Payment Terms

The nature of custom programming is that once the job is done and if you don't pay the bill there is little reason for the programmer. The custom program is of little value for organizations

after all the time and effort has been spent. You will have to show good faith that you will pay for the job in less than 30 days of the total bill and in most projects 100% of the bill would be expected up front.

There are difficulties associated with custom software deals with a programmer/analyst. Is this a new concept? NO. The analyst who develops programs for all the major software companies must write a line of code. The reason for never letting these jobs be performed by one person is that in most cases the design will be the original programming solution rather than the simplest operational solution. There is a natural conflict of interest in the programmer/analyst relationship, the real one, is not stated in the code. Deal only with companies where the analyst will be developing two or more programs, in this way the design of your program will be to meet your needs, not those of the programmer. Remember it is the analyst who should be planning your program and controlling the direction of the project, not a programmer.

This final word on, you have to be able to find your custom programmer. If you are just going to have some that you are receiving less than you expect, unless your programmer and if you cannot rectify the problem, not your losses and find a new programmer. Your business depends on the quality of custom program you receive.

George Bates of Bates Computer Service sales custom programming products. Contact him at 314-500-1.



Now The World's Best Selling Database Is In All These Boxes.



Base Client Base Data Base Interface
Database Server, Data Entry All our products
products are based on the total, reliable
dBASE IV 11. The database (and all) by Software
Super Database PC Database Components, etc. 1990

dBASE applications will run on all three platforms
without requiring code. In fact, in most cases
dBASE IV 11 (single file) will need no coding.

We will make it of the only one with testing
and security features of the VMS, 3270 and

VAX, VMS systems. And users will be able to use
the Control Console Interface and Design Tools to
manage data without programming.

Most importantly, our software can take the step
action in those platforms without losing their
current investment in dBASE data, applications
and coding.

Also ask about the dBASE DBMS products for
transportable across from dBASE software to data
stored on IBM iSeries, 31, dBASE and IBM
mainframes.

Call or write for more information, for these
data, or samples.

Break Out Of Your Box.
Call (604) 736-7886

Ashton-Tate®

An Intro to Accounting

by Don Wilkie

For many small business people, accounting is the most perplexing part of running their operation. How else could accountants earn such a decent living? Beyond dealing with the intricacies of bookkeeping, when the time comes, selecting suitable computer programs only adds to the confusion. Who else, an accountant, business, however, does not employ outside financial assistance?

Good Programs Score

Recent and easy-to-use bookkeeping software for smaller operations is scarce. GSI and PSC applications may satisfy large and regional businesses. Potential business growth and expanded software capacity demands must not be overlooked.

Minimalist Approach

If minimal bookkeeping is required, computer tools such as a database program or spreadsheet might be used to create a set of "books." If that fails short, to identify what best fits your needs, make a list of what you want a program to do. Then check, compare what's available in your list. In considering software cost (not the most important item) bear in mind that "street" prices vary considerably from suggested retail prices.

What are your requirements?

Will it run on a dual-floppy system (if needed)? Do you need accounts receivable or payable files (what sales bill)? How is long track of inventory? What job costing help? How do you want to deal with projected and deferred taxes? Is budgeting a requirement? Is the backup computerized? Will it help reconcile the bank accounts? Are there any networked system variations?

While software installations may vary somewhat from package to package, the number of features usually will affect the cost.

and may be followed.

Check to see how much space hard-disk space is required. Some programs files will consume a good-sized chunk of the hard-disk space. And sometimes, created in the program in use, will gobble up even more.

Since some installation routines will modify and delete "workbooks" or "books" files to access the operating system's buffer and file

handling, check to see how the program deals with these files, or make a copy of them before making the installation.

To accommodate more than one user, consider using a network adapter card, some programs may call for "networks" or "clients" files to access the operating system's buffer and file

handling, check to see how the program deals with these files, or make a copy of them before making the installation.

To accommodate more than one user, consider using a network adapter card, some programs may call for "networks" or "clients" files to access the operating system's buffer and file

This computer runs from MicroMiner provides accounting packages and a need to deal with early entry. Common transactions are pre-defined. Pick one, enter a dollar figure and the program prints both sides of the entry. Menu options include the action entry transactions, print ledgers, system configuration, file setup, menu editing, GSI, financial statements, system creation, balance sheet, report, receivable and payable.

Under many programs where the software is installing, the format for the number letters (e.g., M/M/M/M). The program is recommended up to 1000 accounts and payable accounts. It also provides a word processor with a mailmerge capability. An Epson/IBM

The Five Secrets of Power Programming.

Presenting Macro Layers Ltd

Presenting Macro Layers Ltd. The top program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #1: The CASE of the 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #2: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #3: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #4: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #5: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #1: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #2: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #3: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #4: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #5: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #6: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #7: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #8: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #9: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #10: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #11: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.

Secret #12: The 100 Percent

Macro Layers Ltd. is the only program in the world for creating and managing your business. It's the only program that can do everything you need to do in the world of business.



Only \$359.95!



Canadian Distributor:
MacROMP, Macrom Computer Canada Ltd.
100-100 West End Road
North York, Ontario M2N 1L3
Tel: (416) 598-2766 Fax: (416) 598-4000

SCANFAX

Full page Scanning...
at a fraction of the cost!



SCANFAX is a unique document capture product which converts any document into a full page scanner. Unlike SCANFAX, full page scanning was costly, inconvenient and slow. Now it's no longer. SCANFAX scans images, processing them into the main stream. Now there is no reason to delay capturing the new and exciting world of image processing. Discover the possibilities.

Need more information? Call today and ask about our Laptop and Notebook Communications products.

\$199

KALMAN Communications Inc.

(800) 364-0000

Dealer Inquiries Welcome



ONLY

\$ 1150.00

AMT Technology Corp.

Tel: (804) 731-7880

Fax: (804) 731-7844

1000 W. Broadway, Suite 100 & 101, Norfolk, VA 23510

DacEasy Light

Product: DacEasy Light Easy Cash Accounting Software
 Publisher: DacEasy Canada, Inc., 25 Spadina Avenue, Suite 201, Toronto, Ontario, M5T 2C1 Phone: (416) 593-1114
 System Requirements: 512K memory (RAM) for DOS version 2.0 or later, hard disk
 OS: Interleaf Dos Small business with basic accounting needs, home businesses and consultants.

Overview

DacEasy Light is an entry level, full-featured accounting system for individuals or small businesses that have basic accounting needs. DacEasy Light tracks both bank accounts and credit cards, giving you the ability to have a complete look at your current financial picture. DacEasy Light does have the ability to track other assets or liabilities, but the main functions are based around bank account and credit cards.

Setup and Ease of Use

DacEasy Light installation is controlled by a simple program, all options are checked during the installation process. Once it is installed, setting up necessary accounts for the basic accounts, then you may add more if you wish or delete the ones you don't need.

The assistance is a pull-down feature, which is easy to use. The appearance of the screen is quite pleasing and professional.

Reports and Documentation

The documentation and packaging is complete and easy to read. There are sufficient help guides to allow an experienced user to obtain the desired results from the package without reading the entire manual. If you do have to read the entire manual it is not too small. The packaging matches with all other professionally produced software packages.

Most standard accounting reports are available. High-level accounting packages have report writers so you can create your own reports. Considering this is an entry-level package, all the reports it would expect are available.

Error Handling & Limitations

Errors are not a result of this package, as I find the error handling is complete. Each time an error occurs, the error message package traps it and removes the error message. I found that for the needs of most individuals and small businesses, DacEasy Light has most of the features required but there are a few features missing that I believe are required.

DacEasy Light does not have the ability to change the printing format of the checks, remittance statements. This is a limiting factor that reduces your ability to personalize the package.

There are only a few printers supported, and one I found missing was mine. There are no other printers supported. This may ask, why does an accounting program have to support so many printers? The reason is, if I am only spending \$49.95 to buy the program, I don't want to have to get a new printer to use it. Most small businesses will only have one printer, and these days, that one printer is just as likely to be a laser printer. Check the package to make sure your printer is one of those supported.

Conclusion

If all you want is basic checkbook and credit card accounting with no frills, and need, DacEasy Light is a viable package that will do the job. If you choose to use DacEasy Light but will be connecting yourself to buying changes, updates, and additions from DacEasy, it is a pity that the package does not support two-generated bank checks.

Personally I am not overly impressed with DacEasy Light. It is a very limited program used in most situations I can think of, I could not use it. My anxiety was not the issue as you, however, consider other options, where it comes to accounting, the rules do not change. If the package works for you today, it will work for you many years. That if your software met by the simple package, why pay more?

This review was prepared by 22 Software Review Corp. (904) 339-0175 and is protected by copyright. Any reproduction or distribution without express written consent of 22 Software Review Corp. is strictly prohibited.

Easy RETAIL®

Only \$299.00*

*SUGGESTED RETAIL

The POINT-OF-SALE package for your small business needs

At last, software that uses your PC as a point-of-sale terminal and a powerful management tool... all in one!

SIMPLE

- Easy set-up
- Simple one-key screen
- Easy daily close-out & deposit
- Print Receipts

GST Option with full set of reports

POWERFUL

- Full inventory tracking
- Security with exp. password
- Partial payment ability
- Reports: Daily Sales & Cash Sales History, Partial Payment History, Inventory (by Item), Inventory (Customer by Item), Inventory (Store by Item), and much more...

New Version 3.0 with Cash Drawer Option and Small Receipts is on the shelf at Super Software, or call your local dealer.

Free upgrade to registered 2.0 users

Super Software, Inc. 1000 Lakeshore Blvd. E. Suite 100

DEALER INQUIRES WELCOME

Hands On Computer Services
538-1719 fax 535-9053

Specializing in small business personal computer needs hardware and software training and consulting
 Call for Special on Notebooks

TECHNOLOGY CORPORATION

AMT

What A Deal



VGA Colour 386sx

- 16MHz 386sx Personal Computer
- 1MB RAM (Expandable)
- 1.2MB 5.25" Floppy Drive
- 40MB Fast Access Hard Drive
- Parallel / Serial / Game Ports
- VGA Colour Monitor

FREE
 With this package
 100% Free
 with System Package
 (see brochure for details)

ONLY **\$1150.00**

AMT Technology Corp.
 Tel: (804) 731-7880
 Fax: (804) 731-7844

1410 W. Broadway (Glenville & W. Broadway), Vancouver, B.C. V6H 1H8

MACINTOSH PREVENTIVE MAINTENANCE

'Restore Your Mac to Peak Operating Efficiency'

- Defragment Hard Drive
- Optimize Hard Drive
- Diagnose File Structures
- Up-Date System Files (V. 6.0)
- Adjust Control Panel Settings
- Desktop File Organization
- Deleted Computer Volumes
- Install Virus Control Software
- Install System Server Software
- Install Monitor Check
- Adjust System Sleep

\$69

Per Mac

ALL SERVICES

COMPLETED

AT YOUR LOCATION



ROCKLAND COAST PROJECTS INC.

SOME OF OUR OTHER MACINTOSH SERVICES INCLUDE:

- Training
- Software & Hardware Recommendations
- Accounting Software Installation & Support
- Customized Databases

The Expert Service AMT
 Personal Macintosh
 Recommended Service (1/2 Day)
 Tel: (804) 732-3303
 Fax: (804) 735-9558

- Customized Forms & Templates
- Mac Temporary Services
- Hard Disk Management
- Data Recovery

NewViews ACCOUNTING



The Visual Approach to Accounting

SALES

SUPPORT

TRAINING

Certified Consultants

CompuWork Pacific Inc.
Vancouver, B.C.
684-8211

Macintosh & Great Plains: The Classy Bean Counter

by Norman Hixon, & Co.



Product: Great Plains Accounting Series for Macintosh Version 3.4
Publisher: Great Plains Software Inc. 1101 S.W. 10th St., Fargo, N.D. 58103 Phone (703) 281-0550, Fax (703) 281-4435

System Requirements:
Computer: Any Macintosh computer having at least 1024K RAM memory and one 800K floppy drive.
Hard Disk Drive: 20 MB minimum; 40K required for single user. Workstation requires hard disk; only 3 code files are stored locally.

Printer: Intelligent II or LaserJet with built-in computer. Impact printer required for multi-part forms are used.
APPL Operating System Software: System 3.0 or 2 or higher, Finder Version 6.0 or higher.
Network (file server) software: AppleShare or TCP Version 3.0.
Price: \$750 US (\$ 915 Canadian).
Key features:
• Fully Integrated Accounting Software
• GDT Compatible
• Excellent Technical Support

Overview

While businesses have traditionally turned to DOS based accounting programs, more and more businesses are turning to Macintosh to manage their books. As though there are several high-end bookkeeping programs available for the Macintosh, only a few packages have been modified to deal with the reporting requirements of the GST.

Great Plains a Leader

Great Plains software, one of the leaders in the U.S. accounting market, was one of the first to offer a GST version for their accounting software. The Great Plains Accounting Series is the best-selling high-end Macintosh accounting package in the U.S. for several reasons. Most notably, Great Plains Software has outstanding technical and customer support. The modular line has a wide range of accounting functions including multi-currency capabilities.

Great Plains has a history of updating their software based on suggestions from their customers and from accounting professionals. (Version 6 is to be released in September, and include over 300 of these enhancements.)

The company demonstrates a strong commitment in the Canadian market in the release of their Canadian Payroll module and GST enhancements.

Available Modules

Programs that are priced as separate modules are the more powerful and usually geared to dedicated bookkeeping operations. The Great Plains Accounting Series for the Macintosh includes the

ATTENTION Software Dealers

The Point-of-Sale market is expected to generate \$17 billion in sales during the 90's.

Are you ready to capture your share?

IBM Canada and Fujitsu have made NEWTECH the best Point-of-Sale software available. It is a fully integrated retail management system used by over 100,000 retail stores in retail businesses. Current users include Grocery Stores, the Law Firm of Canada and 1547r Leader Louderline. NEWTECH 100 POS also interfaces with popular accounting packages such as ACCPAC, NewViews, Redford, and Worknet 400.

Become part of an international dealer network, selling the industry leading software. Call today for a free demonstration and information on how to get your share of the \$17 billion.

Software
P.O.S.

**The Ultimate
Competitive
Weapon for
Retail Success!**

Newtech Corp. GPO, #301-766-1111 ext. 2222, Vancouver, B.C. V1P 0P1 800-441-3700

NEWTECH COMPUTER LTD.

428 Denison St., Vancouver

(parking at rear)

Tel. 251-3309

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

EXCELLENT PRICE, QUALITY, SERVICE (WELCOME TO COME)

System Sales: Special Price & Special Service

(includes FREE Training + Installation + Delivery)

System

Model	Price	Price
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995

Model

Model	Price	Price
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995
NEWTECH 100 POS	\$1,995	\$1,995

All Models Feature:

- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash
- 100% Cash

The UPGRADE to SUPER VHS and \$269

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

NEWTECH 100 POS, NEWTECH 100 POS, NEWTECH 100 POS

Following is a brief General Ledger, Accounts Receivable with Banking, Accounts Payable, Payroll, Cash Management, with Checkbook, Reconciliation, Inventory, Order Entry with Point of Sale, Purchase Order, Job Cost with Estimating, Costing and Billing.

The program modules are fully integrated and employ the batch processing system (a key feature for many bookkeepers). The software customizes the use of bookkeeping modules which meet the input of transaction details such as vendor information.

All modules have an extensive range of reports which in many cases can be customized to suit your requirements. Most of the modules list for approximately \$750 U.S.

Learning the Program

The modules usually come in three components: an introduction package, a learning guide and a reference manual. The introduction package includes the program diskette, installation booklet and the registration information.

The learning guide has a series of screen lessons for learning the module. Included herein for a sample company to practice on. The lessons are straight forward and easy to follow. The reference manual is the final piece of documentation. It contains screen shots, screenshots, checklists, suggestions, references and detailed explanations about all aspects of the software.

Support

Customer support at Great Plains Software is excellent, both directly from the company and through a nationwide service network. Your purchase includes installation support from the company. Although the support center is located in North Dakota, the toll-free 800 number is accessible from Canada. As well as returning calls promptly, support technicians can be contacted on a fee extremely knowledgeable and personally interested in your concerns. (A rolling change from the operational level to technical support, customer support companies who act as if they don't have time to take an interest.)

There are optional support packages available at additional costs depending on your needs and requirements. The company also conducts periodic training seminars in major Canadian and U.S. cities.

Areas to Improve

No software package is perfect, yet Great Plains software comes close. Because of its DOS-based, the software module limited use of the Microsoft interface. Although Great Plains is working to improve this, the software still has a DOS appearance. The new Macintosh release (Version 3) will make more extensive use of the Mac interface and the new Apple operating system (System 7).

Conclusion

If your company has specific accounting needs, requires a high level of product support and desires flexibility, I recommend the Great Plains Accounting

Series. Although the initial investment in the software is more than some simple integrated packages, the additional features and the outstanding support make it an economical long-term investment.

Norman Rosen, J. Coen, a registered financial controller, is a business consulting consultant for the National Software Support Group. If you have additional questions about Great Plains, you may reach him at 317-2823.

Insight Expert Accounting Series

Another Macintosh high end accounting series, which was recently awarded for the GTE, in the Insight Expert Accounting Series.

Underwritten by Layered Inc., the original publisher of the Insight Expert Series is no longer in business. Therefore Software Inc., the new publisher, is primarily known for its DOS accounting software although it was one of the first publishers to develop a entry level accounting program for the Macintosh.

The series includes modules for General Ledger, Accounts Receivable and Billing, Accounts Payable, Inventory and Time Billing. No Canadian Payroll module exists.

The Insight Expert Series makes the best use of the Macintosh interface of any high-end accounting package. The series focus are excellent and the program allows you to move easily from task to task. The program can present a financial report graphically and has the ability to analyze numbers in terms of liquidity and ratios such as liquidity, profitability and return on equity.

Flexibility is one of the following 50 days of free telephone support with the program. Optional support plans are available at an additional cost.

The program also offers a free link to the 4th Dimension database. Presently, the program is not multiuser (although modules can be shared on a local network). Few have been suggested that they are working on a multi-user version to be released this year.

(The company has also recently announced a plan for incorporating System 7 features into the program. These include support for the Link Manager, which would allow transfers from desktop to a spreadsheet program for more advanced analysis and graphics. The Accounts Receivable module will support System 7.0's Shared Manager, so that users can attach video cameras to customer ledger cards. The new record-retrieval capabilities will provide a handy way for users to make more connections while doing on-line collections.)

Insight will apparently also support MacLink Help, which provides step-by-step messages directly linked to specific areas on the screen. The A/R module will also support AppleLink, a network which makes communication between System 7.0 Macintosh programs more efficient. The program is also expected to support Time Type Tools. The new version is expected to debut at the August 8-9 MacWorld in Boston. —Ed.)

Are You...



- Preparing financial statements for your bank?
- Doing your personal or corporate tax returns?
- Computerizing your accounting system?
- Thinking about selecting new accounting staff?
- In need of monthly or quarterly bookkeeping or payroll services?

We can help you.

Call us for all your accounting needs.

HEALEY SEIGNEURET & Co.

CHARTERED ACCOUNTANTS



Joseph Seignurett

Oakridge Centre

500 - 650 W. 41st Ave.

Vancouver, B.C.

(604) 266-0212

TELEPHONE CORPORATION

AMT

The Boss Is Nuts!

VGA Colour 20MHz SX

☆ 20MHz 386sx Personal Computer

☆ 1MB RAM (Expandable)

☆ 1.2MB 5.25" Floppy Drive

☆ 40MB Fast Access Hard Drive

☆ Parallel / Serial / Camera Ports

☆ VGA Colour Monitor

ONLY

\$ 1250 00

FREE

15% Free Quotes

with Great VPC

with System Purchase

(also includes tax)

AMT Technology Corp.

Tel: (804) 731-7550

Fax: (804) 731-7544

1450 W. Broadway (Greenwich & W. Broadway) Vancouver, B.C. V6H 1W6

Dear Robert,

The final installment of a three-part series on 'how to buy a computer' for novices

By Mike Farnick



Here is the last of the "How to Buy" series. Today I will tie up loose ends and go into some advanced stuff, just in case I say just as much, because

however much you know there will always be something new to know. Every, well, you will have a different opinion and it may vary every day. Keep your mind and all will be well. They may indeed know more, but it may not be relevant to you.

A recent incident at Ye Oldie Computer Shoppe had several cases

displaying each what like we were from different planets. We can't have been talking about the same IBM PC, or were we not wrong, just coming from different angles.

Peripherals

Peripheral refers to anything other than the basic CPU. These typically are screen (monitor), keyboard, printer and mouse. Of course these all have some decision to be made about them. There is the sort of stuff that keeps me up at night.

Last time I covered disks, hard hard & floppy, monitors, graphics cards and printers. I spent more money on keyboards, expansion boards, mouse, modems, fax boards and game ports.

Keyboard

Most people find the "standard" is the last layout the most key.



There is not much that you can do about the keyboard. I prefer the 101-key Enhanced keyboard, it has a separate numeric keypad on the right which is useful for entering lots of numbers. 101 should come as an absolute minimum.

Try the keyboard now. If you are a dexterous typist, you may want to get a keyboard that suits your particular method. The common best word is "tactile", this means you can rest your fingers on the keys and there is a little give before the key is considered pressed.

You can get keyboards with and without trackball, but whatever you have are stuck with. You will learn to love it.

Mouse

Buy a mouse. I have seen a cheap store as a chain store for \$15. Logitech and Microsoft sell more expensive, but highly-reputed ones.

You use a mouse to point to a command on your screen. The mouse is on your desk and if you move it forward, left, right or backward the screen on your screen moves with it. When you are pointing at the desired command you press a button on the mouse and your work is done. A mouse is associated with a Graphical User Interface (GUI), which I describe below.

My main activity is word processing and I find it a nuisance to have to move my hand back on the keyboard now (where the letters are) to the mouse and back. I find it easier to use the function keys on the keyboard.

Editing and doing many programs, not just word processing, let you have access to an extension to the keyboard. Moving around a document, selecting text or spreadsheet uses a much easier with a mouse. This is what I recommend a mouse for, as a mouse extension of the normal keyboard operation.

Modems

Modems are a telephone line to connect one computer with another. This will give me more bang than I think of it. You can transfer data between your computer and your friend's computer or use an electronic messaging system such as E-mail or CompuServe. To use these, you connect with a central computer and use your mouse to use your friend's pipework to the link to read wherever they connect.

IF YOU DO WINDOWS YOU NEED DARIUS™



With the introduction of sophisticated graphics-oriented software such as Windows 3.0 by Microsoft, you need a high quality color monitor to get the maximum benefit from the graphics. Darius Technology Inc., an innovative advanced technology manufacturer, has a full line of monitor solutions for you.

Starting with the Darius 14" VGA-1440, an economical upgrade to a color VGA monitor including the Darius TIME-1430, a Triple Sync Monitor which is compatible with CGA, all the way up to 8014/4 and Macintosh II, through to the Darius FOR-V-804 - a 100% X-144 high resolution monitor, Darius offers you a family of high quality VGA color monitors to meet your requirements.

DARIUS MONITORS come with a TWO YEAR WARRANTY, plus the proven reliability and workmanship you expect from Darius Technology Inc.

For more information contact your authorized Darius dealer

COLUMBIA COMPUTER
Columbus, OH 614-455-6000
Tucson, AZ 520-783-4500

COMPUTER GAINS
Fort, AZ 402-645-6462

COMPUTER PLANS
Vancouver, BC 426-649-2703

COMPUTER POWER
Grand Prairie, TX 504-528-5333
Pawtucket, RI 404-450-5555

DATA SERVICES
Burlington, VT 804-669-6206

COMPUTER SYSTEMS
Fort Adams, RI 404-722-0406

DEI COMPUTER
Baltimore, MD 410-643-6326

INNOVATIONS COMPUTER
Cary, NC 404-383-1854

INFORMATION GROUP INC.
Victoria, BC 254-389-3000

LAUREL COMPUTER
Burlington, VT 804-669-1170

MI COMPUTER
Burlington, VT 804-676-6806

POWERSYSTEMS
Vancouver, BC 426-643-2441

PRICE DESIGN COMPUTER
Pitts & Georgia, SC 804-561-1412

TECHNO ELECTRONICS GROUP INC.
Baltimore, MD 410-455-5352

TLS
Richmond, NC 804-773-4700

TECHNICAL COMPUTER
Waukegan, IL 404-700-4363

THE FERRIS COMPUTER
Albany, NY 518-262-7867

VALLEY COMPUTER
Chattanooga, TN 423-228-0271

WINDS COMPUTING
North, VA 404-797-1439

WISDOM COMPUTER
Waukegan, IL 804-721-1144

DARIUS™ is Distributed in Canada by TIC-IBM Technology Inc., 2801 Inglis Avenue, Scarborough, ON M1V 6C7, Tel. 416-436-8833 Fax 416-436-1115

©1991 Darius Technology Inc. All rights reserved. Name and logo design are registered trademarks or trademarks of Darius Technology Inc. All other names and logos are trademarks or registered trademarks of their respective owners. Darius Technology Inc. is a registered trademark of Darius Technology Inc.

MUNICATIONS

MONTHLY FEATURE SYSTEMS

Morse-Tech Desktop 386SX-16 System

- base 386SX-16 CPU
- 1MB memory, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- Two 386SX Two 7.5" HD hard drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,250.00

w/ 4MB memory

\$1,425.00

w/ 20MHz CPU

\$1,295.00

Morse-Tech Desktop 386DX-25 System

- base 386DX-25 CPU 386DX-25
- 1MB memory, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- Two 386DX Two 7.5" HD hard drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,250.00

w/ 4MB memory

\$1,495.00

Morse-Tech Desktop386DX-33 Cache System

- base 386DX-33 CPU, 386DX-33
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- Two 386DX Two 7.5" HD hard drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,730.00

w/ 4MB memory

\$1,905.00

Morse-Tech Tower 486DX-25 Cache System

- base 486DX-25 CPU, 486DX-25
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- Two 486DX Two 7.5" HD hard drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$2,900.00

w/ 4MB memory

\$3,085.00

Morse-Tech Tower 486DX-33 Cache System

- base 486DX-33 CPU, 486DX-33
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- Two 486DX Two 7.5" HD hard drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$3,380.00

w/ 4MB memory

\$3,565.00

TAYLOR-MAKE YOUR OWN

Add a
hard drive,
EIDE/D controller,
graphics card,
and monitor to
complete system

• All systems
come with full
two years parts
& labour
deposit service
warranty
unless otherwise
stated.

• Prices may change
without notice.
• Please call us for
the latest pricing

80286-12/16 SYSTEMS

- base 80286-12/16 CPU, 80286-12/16
- 1MB memory, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,250.00

\$1,495.00

80386SX-16/20 SYSTEMS

- base 80386SX-16/20 CPU, 80386SX-16/20
- 1MB memory, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,250.00

\$1,495.00

80386DX-25 SYSTEMS

- base 80386DX-25 CPU, 80386DX-25
- 1MB memory, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,250.00

80386DX-33 Cache SYSTEMS

- base 80386DX-33 CPU, 80386DX-33
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,730.00

486DX-25 Cache SYSTEMS

- base 486DX-25 CPU, 486DX-25
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$1,730.00

486DX-33 Cache SYSTEMS

- base 486DX-33 CPU, 486DX-33
- 1MB memory, up to 3MB on board
- 1MB secondary, up to 3MB on board
- Two 5.25" 1.2MB floppy drives
- 17" color monitor, 19-pin cable
- Mouse (Two Year WPA and WPA-2)
- Double Day Weekend AT Case
- 750, 500kbaud modem (28.8kbaud, 300baud, 1200baud)
- Teletype terminal included

\$2,260.00

The Cellular Corner

(Over 100 models by Morse-Tech Communications & Co.)

016 900 **\$1,160.00**

Motorola DPC 800

10 dual (low charger) plus battery **\$1,260.00**

Motorola Talkman Ultra **\$868.00**

Prices on other products not listed will be available on request.
The cellular charge is \$0.05 per minute. All other charges are extra.
\$0.05 per minute. All other charges are extra.
\$0.05 per minute. All other charges are extra.

BEFORE YOU INVEST... INVESTIGATE!

Privately service from our staff in person or by mail.

Check us out, give us your feedback, we have it all, and Customer Service is your word.

Quality is assured - All Computer Systems are fully tested and backed by 48 hrs.

Free friendly telephone service and on-site advice.

Be wary of fly and dishonest merchants...

Make sure you buy from one who is honest and
reputable.

It will save you time and money in the long run.

CALL The Better Business Bureau at 681-0312 and check us out.

MORSE-TECH BBS

- on-line customer support
- electronic mail
- shareware programs & utilities

(604)738-3820

MENTEK



"A commitment to success"

TOP QUALITY • AFFORDABLE • EXCELLENT SUPPORT

New Style, Heavy Duty, High Quality cases with well-known **Senstron** power supplies just arrived!

PLEASE CALL FOR SPECIAL PRICE

If you are unhappy with current supplier, confused with choosing reliable products, **please try Mentek NOW!**

Our friendly marketing rep will be pleased to serve you. Please feel free to call us and find out why MENTEK Computers are so widely accepted by Government offices, big corporations and educational institutions.

WHY MENTEK?

- Good quality and true rated components
- Tight quality control with certificate
- Steady and consistent product supply
- Fast delivery
- Low RMA return
- Friendly people



MENTEK SYSTEMS CORPORATION

373-13988 Canby Road, Richmond, B.C. V6V 2K4

Tel: (604) 276-8533 FAX: (604) 276-2992

Calgary: (403) 254-0224 Edmonton: (403) 436-4229

YOUR FIRST COMPUTER

Decisions Are More Than Chip Deep - The BUS

Having information is of no use unless you can communicate it. The CPU uses a device called a BUS (and "bus" doesn't spell that one out or they'd know you're full of it) to pass information between it and the other parts of the computer. There are different sorts of bus designs available.

The industry standard bus is called ISA (Industry Standard Architecture). This bus worked well for a room's age (yes, how long do roommates live, anyway?) and is still OK. However, IBM fink that the bus would be a limiting factor in newer machines so they came up with a new bus, called (MGA) Micro Channel Architecture. This is faster but does not work with ISA. Just about the only people that use MGA are IBM and their PS/2 range of computers, including the models 25 and 35 which were out as last spring. More often you'll see a computer that is expensive, slow and will not work with the spare parts from your old machine!

In an attempt to break IBM's dominance over the desktop and the future, a group of manufacturers got together to create a new and improved bus that was licensed to everybody and cost just IBM. This bus is called Extended Industry Standard Architecture (EISA). It is a faster bus than ISA, but it does not work with the spare parts from your old machine!

In an attempt to break IBM's dominance over the desktop and the future, a group of manufacturers got together to create a new and improved bus that was licensed to everybody and cost just IBM. This bus is called Extended Industry Standard Architecture (EISA). It is a faster bus than ISA, but it does not work with the spare parts from your old machine!

LINO OUTPUTS

SPECIAL \$600 IBM & MAC

Printing Services

- Full Colour Printing
- Hot Stamping
- Embossing
- Enlarged Printing

Special price is based on letter size with each sheet of paper and does not include mounting or shipping fees.

Magic Press

2662 Commercial Dr., Van.

Tel: (604) 255-0035

Fax: (604) 255-4998

your Architecture (EISA). You can use ISA parts and EISA parts alongside each other as the same computer will do this as long as the bus is the same.

To cut this story short, unless you are not a fan of IBM, it is safe to assume that your bus is ISA. This is the cheapest option and is fine unless you have a special requirement.

Where Does the Stuff Go?

When a disk is full, the user's papers, software and general stuff I do not like during my disk with computer equipment. If you are the more than you have to find other places to put things.

The screen often has to go on the desk and, ergonomically speaking, it has to go right in front of where you sit, with the keyboard between you and the screen.

Putting the computer anywhere but the desk may mean that you have to buy extra space for the screen, keyboard and mouse. When placing the computer you need to remember that the power switch and floppy disk drives are on the case and you have to get at them.

If you put a desktop unit on its side, make sure that the screen will still be visible. Oh, and by the way, moving a computer containing a hard disk when it is running is not a good idea.

You can put the computer's case between a desk and a wall, thus avoiding spending money on a special stand. The overhead slot in the back of the case from many years ago holds the fan, so the fan may be exposed, you may be the shop. Do not run a fan case directly on the wall.

Ask the advice of the shop you buy from, and remember that a defective piece of electronic equipment is a liability risk, as applied to children and animals, that apply to your tolerance and stress also applies to computers. If anything, computers are more susceptible to magnetic fields, static electricity and power surges than most other machines. You might want to take precautions, although they don't (yet) environmental a head and while working on one.

Legal Software

Unless you are told otherwise, you cannot copy a program for commercial use. If you are told that you are not free to copy it then the software is in the "Public Domain". Sometimes the authors of these programs ask you to voluntarily pay them money. These "pay if you like" programs are called "shareware".

When you buy a program you are usually legally entitled to run the program on one and only one computer at a time. If you load the program onto a hard disk then you have to delete it before you can use the program on another computer.

The problem with legal programs is that you may not need one now. You may find that shareware is adequate for your needs. Consider getting a hard disk to store shareware. This is a long exposure when you have a better idea of what you want.

Whatever you buy, you will probably

YOUR FIRST COMPUTER

learn to love it or don't worry too much about it. Just check that the program will do what you want. Too many people tell you that the software they use is the best. Most people will also recommend the most checking list restaurant in the world, it's not the best, it's the only one they know.

Training

You can pay money to go to night school, pay a lot of money to go to intensive training, buy a book or even take a correspondence course with me.

You can expect some help with the computer from the people that you buy from. You might ask for your software to be loaded for you, when that you should be able to use the computer with a few more instructions.

If you buy good-quality software you will get manuals, training programs that teach you by example and you may be eligible for free telephone help.

Your first few days may be a little scary and will hopefully be followed by a period of growth if you can get somebody to help you with the installation. Computers are rather like babies, you are afraid to touch them at first, later you realize that they are quite resilient. Of course you can't go around dropping them on their heads but that never did use my brain.

GUI - said Geary

The most popular graphical user interface (GUI) is Windows. To use it you first start DOS and then use the Windows program like a shell-top. Most users get just how to type WDS and then press RETURN.

Windows uses the full capabilities of the available graphics adapters to display screens. DOS uses a grid of characters to make a screen. It's like the difference between drawing forehead and using Styrofoam letters. I shall call them "smiley" and "character-based" respectively. Remember, we are talking about the screen display, not the printout in a separate matter.

GUI programs have much more flexibility in how they draw something. This has led to a whole new set of things that your computer can do: multitasking is a whole new set of programs such as Windows, Icons, Paint and Sound, and Whisky Whig, I'll explain all below.

Windows and Icons

Each Windows program you run has its own window (drawn area, etc). It is what it looks like a rectangular area of the screen where you can see a program run. You can change the size of a window from full-screen (maximized) to nearly nothing (minimized) and everything in between.

You can have more than one window open at a time. Here's how: click on the icon of a program running in a taskbar and you can swap between them at will.

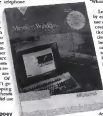
When you maximize a window it becomes an "Icon" which is a small picture that represents the program you are running. Icons typically are placed at the bottom of the screen and you can maximize them by pointing at the icon and clicking the mouse button twice.

Point and Shoot

The advantage of choosing commands by having them available on the screen and using the mouse to point at them. When you are pointing at the desired command, a click on the mouse button is all it takes to run it. Clicking on something not holding the mouse button down while moving the mouse is quite usually called dragging.

Whisky Whig

This is kind of a myth, it stands for "What You See is What You Get" the installation is in Windows and so on my "Whisky Whig."



Let me explain this by example. When I use a DOS word processor and change the letters to be double height, the last I can hope for on the screen is to see the double height letters displayed on a different color. A GUI word processor would change the letters to double height as they would appear on the printed page so I wouldn't have to double-height. This is extremely useful if I am trying to make a page look good as a monthly newsletter or advertising material.

When I talk about DOS and Windows I am talking about an operating system and an operating environment that support other programs. A DOS application program does not have to bother about how the letters A go onto the screen; it just tells DOS to do it. Similarly, a Windows application program is only concerned with the input it gets and how it responds to it, it is not concerned about where the window is or how big it is.

Multitasking

The latest release of Windows (version 3.11) can run more than one application at a time. This means that while you work with one application, the computer can be processing several others. This differs from "task-switching," which is when you work with one application but all the others will be halted.

Multitasking is not a case of your time working with the computer; it is a case of you waiting for the other. The computer is so fast that it has no trouble keeping up with you. Generating a large database report can be slow, so rather than wait for the report to finish you can wait to get on with something else. You get the idea.

The problem with Windows and multitasking is that it is possibly slow with some unoptimized computers. To

Summer Savings!

386C SYSTEM: 48MB System

- 1MB RAM
- 1.2MB or 1.44MB Floppy Drive
- 100% Full warranty 3 yrs
- 1 Year Warranty

\$1088

386C SYSTEM: 48MB System

- 1MB RAM
- 1.2MB or 1.44MB Floppy Drive
- 100% Full warranty 3 yrs
- 1 Year Warranty

\$1578

386C SYSTEM: 48MB System

- 1MB RAM
- 100% Full warranty 3 yrs
- 1 Year Warranty

\$2368

UPGRADE OPTIONS:

- 4MB RAM \$238
- 200 MB \$248
- 300 MB \$258
- 400 MB \$268
- 500 MB \$278
- 600 MB \$288
- 700 MB \$298
- 800 MB \$308
- 900 MB \$318

After's Choice

386C SYSTEM: 48MB System

- 1MB RAM
- 1.2MB or 1.44MB Floppy Drive
- 100% Full warranty 3 yrs
- 1 Year Warranty

\$1368

386C SYSTEM: 48MB System

- 1MB RAM
- 1.2MB or 1.44MB Floppy Drive
- 100% Full warranty 3 yrs
- 1 Year Warranty

\$2568

All Models feature:

- 486 Modem (115200)
- Windows Explorer
- Windows 3.11
- 100% Full warranty 3 yrs
- 1 Year Warranty
- 100% Full warranty 3 yrs
- 1 Year Warranty
- 100% Full warranty 3 yrs
- 1 Year Warranty

VGA Upgrade \$399

- 100% Full warranty 3 yrs
- 1 Year Warranty
- 100% Full warranty 3 yrs
- 1 Year Warranty

4MB + 48K Package \$238

- 100% Full warranty 3 yrs
- 1 Year Warranty

OMNINET

COMPUTER LTD.

3720 MAIN ST., VANCOUVER B.C. V6P 4P7

STORE HOURS: MON - SAT 9 AM - 6 PM

(604) 872-1136

FAX: 872-1136

TECHNOLOGY CORPORATION

AMT

Lip Smacking Price.

VGA Colour 33MHz 386

- ✦ 33MHz 386DX Personal Computer
- ✦ 64K Static RAM Cache
- ✦ 1MB RAM (Expandable)
- ✦ 1.2MB 5.25" Floppy Drive
- ✦ 40MB Fast Access Hard Drive
- ✦ Parallel / Serial / Games Ports
- ✦ VGA Colour Monitor

FREE

ONLY

\$ 1635 00

AMT Technology Corp.

Tel: (604) 731-7800

FAX: (604) 731-7844

1155 St. James Street (at Broadway) Vancouver, B.C. V6A 1K6





Desktop computers

286 - 5 MB
386 - 10 MB
386 - 25, 32 MB
486 - 25, 32 MB

Minis and Laptops

286 - 5 MB
386 - 10 MB
386 - 25 MB
486 - 25 MB
386 486 100 megabyte drive

Local Peripherals

Back and Photo/ps
Sales
Service
Rental
Supplies

BRAMALL Software options

486 PRIMER STREET
VANCOUVER, B.C. V6T 1G7

Phone 672-0256
Fax 672-9903



Abaton



run Windows as an acceptable speed (you need a 386 with a fast hard drive, and at least 4MB of RAM). On top of this you need to buy applications that run native speedily for Windows.

The Competition

The only serious competitor to Windows is a really cool graphics called GeoWorks Rembrandt (i.e., PC/128GB) which is much faster. I like it, but, as a GUI, it has problems. Right now, the only programs that take advantage of its GUI features are the ones that come with it—a small but decent selection (including address book, calendar, database, writing, drawing, printing and file management tools).

Also, when you run a DOS program, PC/128GB loads and waits for you to finish with your DOS program before returning to GeoWorks.

I liked the word processor and drawing tool very much and generally found PC/128GB better to look at than Windows. For a full review of PC/128GB see January's *The Computer Files*.

Do We Abandon DOS Programs?

DOS-based programs are fast and fast. Enhanced and Super Turbo Windows there is a character-based product that will do whatever a GUI will do. This is not the place to compare GUI and character-based products, however. Windows has not yet got all of its applications programs on the market.

I don't think that running DOS programs is all that hard and I am a living repository of others of that. There is a degree of "techno-fear" and there and I think Windows is causing a living because of that.

However, most applications are just meant to be graphics. For example, desktop publishing just begs for good Windows and you could not have made much without a GUI. A multimedia example might be a database of photos. Information has also includes a photograph, a video recording, and maybe a short video of a photo performance. While the technology is here but has not become long time yet.

A personal comment from my life is that my open eye and I get open-eyes most quickly with GUI than with character-based programs. I don't know whether this is because of the surrounding light or that my normal view is black, or whether I am a little more aware of the screen life across the screen from what is on my computer's just my imagination.

I believe that Windows and its life are with us at least for my lifetime. I don't really think there will be a big change until we start spending our commands on hard. I think the first equipment to see which control will be the one to take place. But this is another story.

Signing Off 3

That's it, old chum. I hope that this

ATIC. Computers

SYSTEM PACKAGES

486 BIOS (DOS, BIOS, etc.)
486 PC/128GB (DOS, etc.)
10MB RAM
1.44MB 5 1/4" (2x) (optional)
486 486 (10MB) (optional)
1.1" 10MB (2x) (optional)
Serial, Parallel & Game ports
286/486 CDA/Printer/Adapter
Enhanced Keyboard & Mouse

AT 286 - 12MHz

\$530
100 or 250

386 \$318
\$770
(2x) 10, 25, 32 MB

386 \$325
\$1080
(2x) 10, 25, 32 MB

386 DX33/34K

\$1300
(2x) 10, 25, 32 MB

486 DX25/28K
\$1950

486 DX33/34K
\$2280

PRINTERS

Enhanced 286 1100/1200 \$199/199
Fax 1100/1200 \$249/199
Hewlett-Packard 1200 \$200
Hewlett-Packard 1100/1200 \$199/199
Hewlett-Packard 1100/1200 \$199/199
Epson 77000 \$110
Epson 77000 \$110
Epson 77000 \$110
Epson 77000 \$110
Epson 77000 \$110
Epson 77000 \$110

MODEM & DISK

286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199

Sound Blaster
\$170

MONITORS

17" 12" \$199
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299
20" 12" 10MB RAM \$299

SOFTWARE

Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199
Word 5.0 \$199

286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199

286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199
286/386 286/386 \$199/199

Come grow with us!

100% Professional
Service
100% Customer
Satisfaction

New Branches

ATIC. Advance Technology
International (Canada), Inc.

45 East Broadway (at Quebec St.) Vancouver, B.C. V6T 1V4
Tel: (604) 875-8859 Fax: (604) 875-8611

ATIC - High Quality Parts + Reasonable Price + Professional Service

0.2 cents per minute

That's right, two tenths of a penny per minute - less than 14 cents per hour. This is the effective rate of a fully utilized VIP membership on MIND LINK!

In fact, we do not even charge an hourly connect time fee. MIND LINK! memberships can be had for a flat monthly fee as low as \$4.50, less than a package of cigarettes. Even our VIP membership is just \$8.25 per month and includes all of the following:

- ✓ Two hours per day of connect time
- ✓ Local/International discussions (no extra charge)
- ✓ Local/International e-mail (no extra charge)
- ✓ Hundreds of megabytes of free downloads
- ✓ UPI Newsline twice daily
- ✓ Newsbytes daily computer news
- ✓ ENS (Environmental news)
- ✓ Low cost FAX service (as low as 30 cents/page)
- ✓ Online games
- ✓ And many other services

Can you afford not to join?

MIND LINK!
BC's Window on the World
Dial: 576-1214, 645-1214, 956-3231
Voice: 534-5443 Fax: 534-7473



2. The Windows Environment

Microsoft Windows has captured the imagination of millions of PC users with its ability to display an screen a good approximation (WYSIWYG - What You See Is Almost What You Get) of final printer output. Fortunately for PC users, the Windows desktop graphical environment is very similar to what a fax needs, although at a different resolution. The FAXer software installs a Windows GDI (Graphical Device Interface) called GDI which appears to all Windows applications as if it were a printer. This allows you to select FAXed as your output device (on the Control Panel, or the program's Printer Setup). Subsequent commands to print cause the FAXer program to intercept and pop up a window to allow phone number selection, cover sheet generation and note text. Once this is done, FAXer takes the Windows file data, scales it to the fax resolution and increases the file format. You are returned to your program immediately, so the fax file operation is true background mode, with an own processor (586MHz) and memory (128M).

3. Fonts

Windows supplies a host set of mapped fonts (Helvetica, Times Roman, etc.) in a variety of point sizes (10,12,14,18,24) and is designed to allow reasonable screen display for your monitor. The font formats are different for different display systems (EGA, VGA, etc.) on each system has its own DPI requirements. FAXer uses these fonts as best it can, but because they are font bitmaps, the first thing you will notice when selecting them is from applications with the FAXer driver selected to

printout, is that the point size available on the menu are much smaller than the standard Windows point size. This is because the resolution of the fax is much higher than that of the display, so when FAXed to the higher resolution, the physical size of the bitmap picture (or font in the case) shrinks. FAXer will boldly attempt to "stretch" the screen available font bitmap to whatever size you specify (in this Windows) but the resulting output may be quite jagged and ugly looking. You can take a compromise by requesting additional font formats (in Windows or TrueType or vector such as font builders) for your display at larger sizes (the ratio varies depending on your display type), but you can quickly run out of hard disk space as these large font files multiply. Even so, if you also have to make sets for your home printer.

Fortunately, there is also a third font problem is elegantly supplied by Active Type Manager, a program that controls bitmap fonts "on the fly", and which supports screen, printer and fax font requirements. Future versions of Windows will incorporate a similar option called TrueType. However, have this utility to display, print, and fax the same documents in all three different resolutions required. The downside is that Type Manager substitutes on a fast system with lots of RAM, but then if you use Windows, you already know that, didn't you?

4. Graphics

One of the few deals in PC software these days is Corel Draw! Not only is it a superb drawing program, but it supports almost 100 font files and 10,000 clip-art images. The fonts can be mapped to

MACINTOSH TRAINING We'll Get You Up To Speed

All Macintosh® classes are limited to a maximum of six students. Each student uses a personal workstation and all workstations are connected to an Apple® LaserWriter® printer and an AppleShare File server.

MODULE	TUESDAY	WEDNESDAY	THURSDAY	SUNDAY
1	2	3	4 Apple PaperMaker 9:00-10:00PM	5
6 Simple Accounting 9:00-10:00PM	8 Microsoft Works 9:00-10:00PM	10 Intervue Mac 9:00-10:00 FileMaker Pro 9:00-10:00PM	11 PageMaker 9:00-10:00 Microsoft Pro 9:00-10:00PM	12 MacProPlot 9:00-10:00
13 Apple Freemove 9:00-10:00PM	14 System 7.0 9:00-10:00 10:00-11:00	17 How to Work 9:00-10:00 How to Mac 9:00-10:00PM	18 PageMaker 9:00-10:00 How to Mac 9:00-10:00PM	19 Word 9:00-10:00
21 Apple Illustrator 9:00-10:00PM	22 Illustrator Macintosh 9:00-10:00PM	24 How to Find 9:00-10:00 How to Work 9:00-10:00PM	25 PageMaker 9:00-10:00 How to Work 9:00-10:00PM	26
28 Start Stamps 9:00-10:00PM	30	31 FileMaker Pro 9:00-10:00 How to Find 9:00-10:00PM		

Please call for more information on these or other classes that you may wish to attend.



**INFOMAX
COMPUTERS**

INFOMAX TRAINING CENTRE

1280 Midway Drive, Vancouver
603-0896



MIDI

for the beginner

By George Hinks

For those of us who have computers at home and are looking for something fun and versatile to use for our computers, let's have a look at MIDI for the beginner. MIDI stands for "Musical Instrument Digital Interface." When one first starts to consider MIDI, one believes it is only for the professional recording artist. In some ways, only the

professional recording artist can obtain his results from MIDI. But for those new musicians only a professional product can obtain that result from a piano. Here many long nights at Vancouver have a holy grail status at home! My point is, even though MIDI is a very powerful tool for the professional musician, we amateurs can have a lot of fun with it, and

practice one simple musical skill.

MIDI is not without its pitfalls, and I will point those out first. Probably the most difficult task encountered when attempting to get involved in MIDI is dealing with the MIDI subsequence. The biggest problem with MIDI for the computer user is that you must often have to purchase your equipment and software through music stores. In every case, I found these subsequence to consider the technical aspect of MIDI to be too difficult for the simple computer folk to understand. The other problem isn't a computer store does carry the product, they

do not understand the musical side. MIDI is a technical market and requires both musical and technical computer technical skill to adequately service.

As was the case with most computer stores several years ago, the music MIDI subsequence will inevitably run off the support staff and leave you, the customer, with no one to turn to for any further capable of answering MIDI system. This is simply pathetic. MIDI is about as difficult to set up as a printer, and running the MIDI software is about as difficult as running a word processor. MIDI is simply the music vertical application for computers and is the same as communications or any vertical which has a specific small hardware component. In fact, MIDI is simpler because MIDI is a standard. While most communications protocols and printers have at least one variable, MIDI has none.

Another major pitfall with MIDI is that the software is about five years behind the times. Most MIDI software is still implemented with various methods which will not utilize the like hard disk storage, but will just serve to destroy the legitimate and honest user. Another common weakness in compatibility with all systems. Most MIDI software is very specific as to what hardware is required—for now you check your hardware against the software you are considering before you buy. Fortunately for the language, the hardware software takes the more appropriate approach to software protection and compatibility.

After looking at such drawbacks, you may feel I do not like MIDI. On the



Why shop anywhere else for Computers?

The Power to Be Your Best!



Authorized Dealer

Apple and the Apple logo are registered trademarks of Apple Computer, Inc.

Now Open on Saturday!

From 9:00 A.M. - 5:00 P.M.

To Service You Better

Sorry, Service Department Closed Saturdays

BYTE COMPUTERS

2051 Burrard St. (at 6th Avenue)
Vancouver, B.C. V6J 2H7
734-2181

Western Imaging Systems Inc.

CALL THE MACINTOSH SPECIALISTS

**"Two megs is not
enough!"**

Western Imaging has the
Mac Classic 4/40 specially
priced at \$1899.00 for July.

Western Imaging Systems Inc.

310-611 Alexander Street
Vancouver, B.C. V6A 1E1
Telephone: (604) 251-2084
Fax: (604) 251-2046

Macintosh, the Mac and Classic are registered
trademarks of Apple Computer, Inc.

Western Imaging Systems Inc. is associated
with Macintosh Graphics Inc., an Apple
Authorized Dealer.

Quest for MIDI

In Search of the Perfect MIDI Program

References

One of the measures of a good tool is what I call its transparency. By this, I mean the understandability of its form, the intuitive nature of its functions, and the immediacy of the process between intent and result. With a great tool, you should be able to sit down and do the task at hand without having to relearn yourself with the nuances of the tool itself.

Desktop Music Publishing



Professional-looking results from your iPhone or smartphone. Follow us on Facebook.

We can help you **SELL**
your company.

• **ATARI** = Atari Software • Keyboards
• **IBM** = IBM • Atari Editors

Noteworthy Music
270-3422

© 2000 Blackwell Science Ltd *Journal of Internal Medicine* 247: 395–401

This, of course, is one of the central issues behind the trend toward graphical user interfaces (GUI) for personal computers. But just as a GUI does not necessarily preclude interactive functionality within a non-GUI-based program, so too does a non-GUI-based program necessarily lack the chance modeling features of a GUI. \square

Certainly, numerous GUTs have been developed, programs about a spread across online spaces that greatly contribute to their perceived speed and efficiency. Similarly, a feature that the length of your arm does not mean that those features will be implemented intelligently or transparently. So, when I went looking for the best music programs, I searched for a balance between *Garageband* and *Midi 2*.

Although, as you will see, my opinion on this is *not* shared by all, I believe that the more creative use—and should be applied to any purchase decision where a better choice for a specific purpose. Whether the tool is a software package, VCR, vacuum or whatever, the usability of the product is the key to its success. And, as much as I wish you readers to take to heart a real feel of how the tool works, I'm gonna know if you personally use the style of the program "get along." The student might grumble while you spend as much time as you can on the usability of the program, but considering the price of high-end software, it's not an unreasonable request. Of course, you don't need to explore every possible feature, just spend enough time to get a feel for how it works. As a computer teacher (or at least a good more intelligent student), I suspect that you're looking for

[illegible]

The ideal "virtual producer" should naturally allow you to make music in the style(s) that you are comfortable with. For pop music, that might mean the standard creation and revision of notes, chords, and song segments, and some arrangements of a song could be tried out, each with different settings or



Overlander again left: Callaway's Kay Felt, HR, HR Manager, Arrange "Tape" Transport and Houston Motor Windows as seen in a landscape window.

For ornamental or similar/patterned longer pieces, manipulate the chain to speed up or slow down the tempo. Use many or few independent instrumental parts and parts on different music.

An important capability is to display individual parts with a different color than the actual MIDI data. This helps avoid the spread of red and small-note notes that limit the short music displays of most notation programs.

Exotic! Some of nature's mightiest efforts from a compositional point that could make a theme and melody in its own way, so as to create a variation. Perennials, perennials can grow from simple rhythms, layered over and over, adding notes or rhythmic accents, possibly while another part proceeds without looping. When a rhythm track is laid down, wouldn't it be great for the able to range a "beat" to change, a steady or laid-back groove?

Whether a new type of brain activity arises from the spontaneous or evoked stimulation of the distal receptive zone of a multi-sensory type thal. Perhaps the electrophysiological activity of the thal. can be interpreted in a type according to an ascending hierarchical model as a "cortical" mapping. Because most EEG/MEG data are obtained by averaging the signals from the same (or different) large, adjacent cortical areas and changing neural activity occurs in all possible directions, "downstream" areas will tend to be able to more efficiently ignore (suppress) signals than the much of these signals, and will pass on only the most significant, and will also be able to ignore signals that are not relevant to the current task. This is the "cortical" mapping. The brain is a complex system, and the signals are not always the same. The signals are not always the same, and the signals are not always the same.

The central program should be able to maintain, allowing loading, saving, for making of chains, relating, deleting or recording of multi-player performances—or even run completely different programs (say, a word processor) at the same time. As you needs grow, you should be able to add more sophisticated software, such editors and BMPTE synchronization devices, and send and receive data so if they were part of our main program. Indeed, a mod that could do all of these things would be nice and



Summer Days

Tolson 100-53

- 16MHz 166EX CPU
- 1 Meg RAM
- 1.2 or 1.44 Meg Floppy Drive
- 1 Serial, 1 Parallel, 1 Game Port
- 101 Keys Enhanced Keyboard
- 40 Meg 3.5in Hard Drive
- Monor Monitor with Hercules compat. card

\$950

Trisom 384DX-25

- 35MHz 386SX CPU
- 1 Meg RAM
- 1.2 or 1.44 Meg Floppy Drive
- 1 Serial, 1 Parallel, 1 Game Port
- 104 Keys Enhanced Keyboard
- 40 Meg 386 Hard Drive
- Micro Monitor with Specular Screen, 640x480

\$1150

Triscon 386DV.30

- 33MHz 386DX CPU
- 1 Meg RAM
- 1.2 or 1.44 Meg Floppy Drive
- 1 Serial, 1 Parallel, 1 Game Port
- 104 Keys Enhanced Keyboard
- 40 Meg 28pin Hard Drive
- Monor Monitor with Hercules support, and

\$1410

3737 W. 10th Ave
(10th and Alma)
Vancouver, B.C.

VARSAITY COMPUTERS

Getting to Know the Book 37

Phone: (604) 222-2326

Fax: (604) 212-1372



HP Desktop print sample from Cubase 2.0 (actual size)

Conclusion

From my phone calls around town and other research, I was able to reach the following conclusions:

Professional MIDI software for IBM compatibles is not plentifully scarce and most dealers claimed that PC-MIDI software is weak compared to offerings for the Atari ST and Mac. The most popular PC sequencer is clearly Cubase, while the least scoring program is a run-up between Encore, Music Printer Plus (MPP) and Finale. Of the three, I personally prefer Encore Mac-like characteristics and ease of use over MPP's two-channel power and Finale's maddening complexity. It may be significant that Encore's file format has been chosen as the standard by which a company called MusicMixer is now distributing short notes in electronic format. Bill Brooks of Noteworthy Music recommended the DTF Laser Music Processor as the best-in-class PC notation printing file.

The AtariST appears to be the choice for MIDI sequencing and scoring applications, with Atari even prize for the U-Lab Sequencer and Music Designer Cubase. Of the two, Cubase has a somewhat more Mac-like look-and-feel (even closer to its rivals Mac system-level), while Finale is more rapid at notation and editing of musical notation. Still, Cubase has a certain transparency in the many ways it can accomplish the same tasks that make it a complete joy to use.

As you can see, we required a breathless sales call called MIDI from Great Software (distributed by Regis Canada), another high-powered sequencer/notation editor/notation for those happyland users. Like its high-end competitors, MIDI sports SMPTE-compatibility, score printing and all the bells and whistles, but of the three, only MIDI is not a copy-protected feature or heavily applied as professional-level applications of any kind at US\$495, it is also the lowest priced. Great also makes a \$249 sequencer-only version called MIDI-X.

I preferred the sequencing accuracy of Cubase over that of Notator. You can move in and out of editing modes, and drag, draw and erase MIDI events and arrangements in graphic objects. Many physical musical events in MIDI notation are lost from the computer, and every operation is Undoable.



The usability findings require purchase of a different value than the actual MIDI data before noted a series of test and evaluation notes. In the Cubase example by setting the quarter value to 1/16, the note value 100.0 of all selected eighth notes. The original MIDI data is not affected.

I also liked Cubase's Explore function, although I was a little hesitant to click on a button I read the manual if a chord is displayed as short notes on a single staff, you can replicate it more easily to that each voice is set its own separate staff-notation arrangement. The program seems in contrast, and even through an editing/sequencing workflow in the most ways.

In fact, Cubase 2.0 was the only take I found that indicated all of the functions in my "Notes list" at the beginning of this article. Generally, neither Notator nor Cubase support printing in PostScript format, although both produce excellent results in dot-matrix, 360p, and 480p HP LaserJet-style printers.

The Mac is up there too, with Encore and Vision both being for "top sequence" take. Of the two, I prefer Vision, which is especially popular in studios across Canada and the states. Vision has support for standard and fold, but lacks the on-screen standard notation elements, editing the later version of Performer has added to its arsenal. Its music can print all available "file" PC and Atari platforms. I should criticize Performer as "Mac-like" considering it runs only on the Mac. Nevertheless, Performer sports a nicely set document interface with handwritten notation, images and windows that look great, but seem to obscure the program's functions.

Users interested in mixing digital audio with MIDI are few off with an SE/30 or Mac II-series machine, using a special version of Vision called Studio Vision (US\$495) that uses Dig Design's AudioMixer or Sound Tools DSP (digital signal processor) card to record and edit CD-quality digital audio tracks. Other Dig Design DSP-related products include a CD/DSP program called Digi 2 that runs a Mac II or better into the digital equivalent of a standard tape deck.

Before which record is a notable mention in MacUser magazine's 1990 Editor's Choice awards, was my overall favorite notation publishing program, although it lacks sophisticated MIDI sequencing features, and cannot produce that old score in fully in a "publish-ready" program like the Pro-MIDI Sequencer. I'd like to mention programs if we supported PostScript (and other) printers.

At the MIDI software support was improving greatly, with more fully and less sophisticated programs than any other computer notation format. Again, users interested in professional MIDI applications might be best off to consider getting a second computer.

Creative Labs has a second computer for MIDI applications and can usually be found after midnight with headphones.

system

desktop computer oipne

computer

The CS-10 Stereo Speaker System is designed specifically for use in a computer environment. Based on its under a computer monitor, the CS-10 speakers are designed to protect computers and desktops. The CS-10 has both stereo inputs and outputs as well as a headphone jack. Volume and tone controls up front allow easy sound adjusting. The two speakers contain full fidelity range. Whether using applications software, CD-ROM audio or editing the CS-10 from Roland is the only choice for quality desktop audio. Contact your Roland Dealership, dealer today or fax us for more information at the number below.

\$225.10 ms. r.p.

Roland

100 PARKVIEW WAY, RICHMOND, B.C. V6V 2B6 FAX (604) 274-0332

TECHNOLOGY CORPORATION

AMT

And we've sharpened it again

Software	List Price	Laptops	List Price
ACCIPAC Softfall	\$ 192	Team Instruments (32 Windows)	\$ 2495
Microsoft DOS 4.01	80	Team Instruments (32 Windows)	2200
Microsoft Word 5.0	250	Team Instruments (32 Windows)	2000
Microsoft Windows 3.0	110	Team Instruments (32 Windows)	2000
Windows v Mouse	175		
Microsoft Works	110		
PC Tools Deluxe	150		
ACCIPAC AIR	530		
ACCIPAC CIL	530		
ACCIPAC QIL	590		
ACCIPAC Windows Mgr	110		

Used Equipment	List Price
IBM AT Clone/1 286/80486	\$ 450
486 Mono Monitor	4900
Sharp (286/33) Desktop w/PS/2 1480 VGA	
Video Card & Hard Drive Data	

AMT Technology Corp.

Tel: (804) 731-7880
Fax: (804) 731-7844

1000 W. Sweeney (Corner 8 & Sweeney) Virginia, B.C. V6H 1G8

Computer Calendar

**DEVOTED TO COMPUTER
SOFTWARE, HARDWARE &
CONNECTIVITY SOLUTIONS
FOR GOVERNMENT & BUSINESS**

VANCOUVER BUSINESS COMPUTER SHOW

- ▶ **SEE HOW** the latest computer systems can help increase your company's **productivity**.
- ▶ **LEARN** from our exciting Software Centre experts how to give your company the **competitive edge**.
- ▶ **DISCOVER** solutions with major retailers displaying the most recent products and services.
- ▶ **ATTEND** the **VANCOUVER BUSINESS COMPUTER SHOW**. Join thousands of other business, industry and government decision-makers who will be here researching the market.
- ▶ **CIRCLE THESE DATES ON YOUR CALENDAR NOW!**

**September 18 & 19, 1991
10:00 a.m. to 6:00 p.m.
Robinson Square Conference Centre**



For additional information, call
800-854-4352 or www.usda.gov/ceq. 2004-2005

■ GROWTH OF LEADERS

Graham 774-2222 • Richmond 774-2227 •
 Springfield 774-2222 • Waverly 774-2222
 Worcester 774-2227 • North Adams 774-2222

1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715, 2716-2717, 2718-2719, 2720-2721, 2722-2723, 2724-2725, 2726-2727, 2728-2729, 2730-2731, 2732-2733, 2734-2735, 2736-2737, 2738-2739, 2740-2741, 27

Intel/AMD to Microprocessors	\$1
IBM/DOJ	\$1
PC Software Applications	\$1
Microsoft	\$1
Ballard	\$1
Microsoft	\$1
Linux/MS-DOS	\$1
Linux/MS-DOS	\$1
Linux/MS-DOS	\$1

Keywords: *Teacher education; Special education; Inclusion*

1. **Author:** [Name]
 2. **Title:** [Title]
 3. **Journal:** [Journal]
 4. **Volume:** [Volume]
 5. **Issue:** [Issue]
 6. **Page:** [Page]
 7. **Year:** [Year]

[illegible]

© 2003 Blackwell Publishing Ltd *Journal of Internal Medicine* 253: 105–112

[illegible][illegible]

ADAPAC - BEDFORD
Training and Start-up
From Former Online Support Staff at
BEDFORD SOFTWARE
Call Barb Macdonald at
CPET Publications Ltd.
574-5555
Barb@cpet.com
Over 20 Years of Experience

NETWORK USERS GROUP

July 1, 1991
August 5, 1991
STUDY PUBLIC INVOLVING

C# 683-VNUG

How Institutions Affect Communities

[illegible]

Malloy Technical Institute Ltd
2174 Mainway Road
Vancouver BC V6M 2G9
Canada

Various Microsoft Windows	Old
Word for Mac [1]	Old
Microsoft Windows Forms	Old
Various Java Virtual Machines	Old

1000

[illegible]

1998-1999, 2000-2001, 2002-2003, 2004-2005, 2006-2007, 2008-2009, 2010-2011, 2012-2013, 2014-2015, 2016-2017, 2018-2019, 2020-2021, 2022-2023, 2024-2025, 2026-2027, 2028-2029, 2030-2031, 2032-2033, 2034-2035, 2036-2037, 2038-2039, 2040-2041, 2042-2043, 2044-2045, 2046-2047, 2048-2049, 2050-2051, 2052-2053, 2054-2055, 2056-2057, 2058-2059, 2060-2061, 2062-2063, 2064-2065, 2066-2067, 2068-2069, 2070-2071, 2072-2073, 2074-2075, 2076-2077, 2078-2079, 2080-2081, 2082-2083, 2084-2085, 2086-2087, 2088-2089, 2090-2091, 2092-2093, 2094-2095, 2096-2097, 2098-2099, 2100-2101, 2102-2103, 2104-2105, 2106-2107, 2108-2109, 2110-2111, 2112-2113, 2114-2115, 2116-2117, 2118-2119, 2120-2121, 2122-2123, 2124-2125, 2126-2127, 2128-2129, 2130-2131, 2132-2133, 2134-2135, 2136-2137, 2138-2139, 2140-2141, 2142-2143, 2144-2145, 2146-2147, 2148-2149, 2150-2151, 2152-2153, 2154-2155, 2156-2157, 2158-2159, 2160-2161, 2162-2163, 2164-2165, 2166-2167, 2168-2169, 2170-2171, 2172-2173, 2174-2175, 2176-2177, 2178-2179, 2180-2181, 2182-2183, 2184-2185, 2186-2187, 2188-2189, 2190-2191, 2192-2193, 2194-2195, 2196-2197, 2198-2199, 2200-2201, 2202-2203, 2204-2205, 2206-2207, 2208-2209, 2210-2211, 2212-2213, 2214-2215, 2216-2217, 2218-2219, 2220-2221, 2222-2223, 2224-2225, 2226-2227, 2228-2229, 2230-2231, 2232-2233, 2234-2235, 2236-2237, 2238-2239, 2240-2241, 2242-2243, 2244-2245, 2246-2247, 2248-2249, 2250-2251, 2252-2253, 2254-2255, 2256-2257, 2258-2259, 2260-2261, 2262-2263, 2264-2265, 2266-2267, 2268-2269, 2270-2271, 2272-2273, 2274-2275, 2276-2277, 2278-2279, 2280-2281, 2282-2283, 2284-2285, 2286-2287, 2288-2289, 2290-2291, 2292-2293, 2294-2295, 2296-2297, 2298-2299, 2300-2301, 2302-2303, 2304-2305, 2306-2307, 2308-2309, 2310-2311, 2312-2313, 2314-2315, 2316-2317, 2318-2319, 2320-2321, 2322-2323, 2324-2325, 2326-2327, 2328-2329, 2330-2331, 2332-2333, 2334-2335, 2336-2337, 2338-2339, 2340-2341, 2342-2343, 2344-2345, 2346-2347, 2348-2349, 2350-2351, 2352-2353, 2354-2355, 2356-2357, 2358-2359, 2360-2361, 2362-2363, 2364-2365, 2366-2367, 2368-2369, 2370-2371, 2372-2373, 2374-2375, 2376-2377, 2378-2379, 2380-2381, 2382-2383, 2384-2385, 2386-2387, 2388-2389, 2390-2391, 2392-2393, 2394-2395, 2396-2397, 2398-2399, 2400-2401, 2402-2403, 2404-2405, 2406-2407, 2408-2409, 2410-2411, 2412-2413, 2414-2415, 2416-2417, 2418-2419, 2420-2421, 2422-2423, 2424-2425, 2426-2427, 2428-2429, 2430-2431, 2432-2433, 2434-2435, 2436-2437, 2438-2439, 2440-2441, 2442-2443, 2444-2445, 2446-2447, 2448-2449, 2450-2451, 2452-2453, 2454-2455, 2456-2457, 2458-2459, 2460-2461, 2462-2463, 2464-2465, 2466-2467, 2468-2469, 2470-2471, 2472-2473, 2474-2475, 2476-2477, 2478-2479, 2480-2481, 2482-2483, 2484-2485, 2486-2487, 2488-2489, 2490-2491, 2492-2493, 2494-2495, 2496-2497, 2498-2499, 2500-2501, 2502-2503, 2504-2505, 2506-2507, 2508-2509, 2510-2511, 2512-2513, 2514-2515, 2516-2517, 2518-2519, 2520-2521, 2522-2523, 2524-2525, 2526-2527, 2528-2529, 2530-2531, 2532-2533, 2534-2535, 2536-2537, 2538-2539, 2540-2541, 2542-2543, 2544-2545, 2546-2547, 2548-2549, 2550-2551, 2552-2553, 2554-2555, 2556-2557, 2558-2559, 2560-2561, 2562-2563, 2564-2565, 2566-2567, 2568-2569, 2570-2571, 2572-2573, 2574-2575, 2576-2577, 2578-2579, 2580-2581, 2582-2583, 2584-2585, 2586-2587, 2588-2589, 2590-2591, 2592-2593, 2594-2595, 2596-2597, 2598-2599, 2600-2601, 2602-2603, 2604-2605, 2606-2607, 2608-2609, 2610-2611, 2612-2613, 2614-2615, 2616-2617, 2618-2619, 2620-2621, 2622-2623, 2624-2625, 2626-2627, 2628-2629, 2630-2631, 2632-2633, 2634-2635, 2636-2637, 2638-2639, 2640-2641, 2642-2643, 2644-2645, 2646-2647, 2648-2649, 2650-2651, 2652-2653, 2654-2655, 2656-2657, 2658-2659, 2660-2661, 2662-2663, 2664-2665, 2666-2667, 2668-2669, 2670-2671, 2672-2673, 2674-2675, 2676-2677, 2678-2679, 2680-2681, 2682-2683, 2684-2685, 2686-2687, 2688-2689, 2690-2691, 2692-2693, 2694-2695, 2696-2697, 2698-2699, 2700-2701, 2702-2703, 2704-2705, 2706-2707, 2708-2709, 2710-2711, 2712-2713, 2714-2715, 2716-2717, 2718-2719, 2720-2721, 2722-2723, 2724-2725, 2726-2727, 2728-2729, 2730-2731, 2732-2733, 2734-2735, 2736-2737, 2738-2739, 2740-2741, 27

- Telemarketing Software & Training
- Video Animation & Special Effects Programs-Training & Hardware
- Computers-Educational Pricing
- Desktop Publishing
- Special Offer Space Available

[illegible]

RIJ NIPMAAN & ASSOCIATES
Computer Associates
International Trade
•P/O Sales •R/P Sales •Market Segmentation
Increasing Sales in 3rd Markets - 1 Month
100% for Total Business - 1 Year
On-going Market Support
RIJ NIPMAAN & ASSOCIATES

LIBRARY OF THE UNIVERSITY OF CALIFORNIA

BY VIDEO PROFESSOR TAKES
YOU WATCH & LEARN in your most useful
STUDY & PRACTICE any other way could be
REVIEW A TOPIC? If you don't understand
5 PROBLEMS in twenty 10-MINUTE WORKSHEETS
 • One-to-one in classroom 100% effective
 • One-to-one in home 100% effective
 • Classroom Publishing in Hardcover
IBM • CALCULATOR • APPLE
Attention: Government Agencies
 Copies to Government Agencies and educational institutions
 are available for purchase at a special price.
 Your satisfaction is our priority. **\$14.95**

Complete it & mail to receive complete package
TORR WATERFACTION GRAMMATECH
 10000 N. 10th Street, Suite 100
Minnetonka, MN 55345
 (612) 835-1000

CALENDAR REQUEST FORM

(Continue last) _____ ROOM _____

STREET _____

CITY _____ STATE _____ ZIP _____

TELEPHONE Int. _____ CONTACT PERSON _____

METHOD OF ORDER ☐ Invoice ☐ Visa ☐ Mastercard
Card Number _____ Expiry Date _____
Name on Card _____

Edition Invoice no. ☐ 100 ☐ 5000 ☐ Newsletter

SAMPLES OF A LETTER

COPIES/TIME used	DATE	PRICE
Inches x 6.64	5 wk., November, Apr. 73	\$98

UPPER GROUPS

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00. **ADIDAS USA GROUP** (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

ADIDAS USA GROUP (athleticwear, 800, 444-3644) has announced 1991 registrations for the USA Soccer Cup. Registration is \$10.00.

286-20MHz

\$1199



- 528MB Plus Impulse Harddisk, 17ins
- Sanyo Super VGA, 1024 x 768, 0.25 dp
- Telexel 1MB VGA, 1024K installed
- 140 Floppy Drive, 1.2MB 5 1/4" or 1.44MB 3 1/2"
- 101 Enhanced and Touch Keyboard
- 16MB SDRAM

386DX-25MHz

\$1550



- 528MB Plus Impulse Harddisk, 17ins
- Sanyo Super VGA, 1024 x 768, 0.25 dp
- Telexel 1MB VGA, 1024K installed
- 140 Floppy Drive, 1.2MB 5 1/4" or 1.44MB 3 1/2"
- 101 Enhanced and Touch Keyboard
- 16MB SDRAM

386DX-33MHz with 64K Cache

\$1899



- 80486 Processor 7068A Harddisk, 17ins
- Sanyo Super VGA, 1024 x 768, 0.25 dp
- Telexel 1MB VGA, 1024K installed
- 140 Floppy Drive, 1.2MB 5 1/4" or 1.44MB 3 1/2"
- 101 Enhanced and Touch Keyboard
- 16MB SDRAM

486DX-25MHz with 128K Cache

\$2499



- 80486 Processor 7068A Harddisk, 17ins
- Sanyo Super VGA, 1024 x 768, 0.25 dp
- Telexel 1MB VGA, 1024K installed
- 140 Floppy Drive, 1.2MB 5 1/4" or 1.44MB 3 1/2"
- 101 Enhanced and Touch Keyboard
- 16MB SDRAM

INTERTECH
OFFICE AUTOMATION DISTRIBUTION INC
4310-10960 Cambie Road, Richmond, B.C., Canada V6W 2K3
Phone: (604) 276-9204 Fax: (604) 276-9601

Nitro Fire! BBS

2400 MNPS

- Drag Racing & Motor Sports
- On-line Games
- File & Message Areas

576-2167

COME OUT A WINNER!



ADVERTISE YOUR COURSE OR EVENT!

The Computer Calendar is going commercial! All calendar listings will now cost \$7.00 per line (plus GST). If you have an event or course you would like listed as an ongoing or monthly basis, please contact the office at The Computer Paper at (604) 733-5596. FAX your ad request to (604) 732-4280. User group listings and certain special events will remain free.

THE ULTIMATE COMPUTER BIBLE PROGRAM

PC STUDY BIBLE From BibleSoft
4 POWERFUL STUDY TOOLS IN ONE SOFTWARE PACKAGE

- COMPUTERIZED BIBLE:** Looks like a printed Bible. Multiple windows let you compare different Bible passages or versions. A single computer tag allowed you to switch between passages. Includes ten complete Bibles in strong - KJV and NIV - plus a FREE American Standard Version translation. Still more! Other Bible versions can be added later.
- COMPUTERIZED CONCORDANCE:** Flexible concordance lets you do fast searches of individual books or the entire Bible. Quickly finds any word, phrase or combination of words in any Bible version.
- NAVY'S TOPICAL BIBLE:** Provides instant access to Bible topics, people and places. Quickly find cross references for any Bible version. Easily find related topics with Navy's extensive cross reference system. Still more! 100,000 Scripture cross cross references under nearly 30,000 topics.
- WORD PROCESSOR WITH NOTEPAD:** Fully integrated. Easy to copy Bible text or add your own notes directly to the notepad or word processor. You can copy verses from any Bible version. You can write prayers, reports, sermons. Bible study notes or other documents without leaving the program.

ADD-ON MODULES AVAILABLE: The Strong's Greek-Hebrew Dictionary, Webster's Bible Dictionary, The New King James Version, the Revised Standard Version and the Living Bible. More add-ons to come.

INFO-PAK FREE DEMO DISK
SPECIAL PACKAGE DISCOUNTS
RETAIL \$149.95
OUR PRICE US\$134.95
\$100 OFF! \$34.95
GREAT HARVEST PROMOTIONS
1-800-934-8743

COMPUTER MOBILE REPAIR

Specializing in IBM Compatibles
7 Days a week including evenings
mobile service for
home & small business

657-0811

TOP NOTCH PROGRAMMER

Technical Bookstore, Handy Service
Equipment

Albany, Niagara, Cayuga, C.

Programming and Testing

Callahan Inc.

230-4853

**NETWORKING
A THING OF THE PACE?**

Quick today, almost night in time.

MACINTOSH NETWORKING '91

• The first book to be available to book go to
• The most advanced network for Macintosh network

FOR INFO: 877-764-7006, CALL
1-800-652-6499

The THRIX Group

Free Software Catalog

- up-to-date, well organized directory
- over 2000 listed, carefully selected programs
- over 700 applications programs available monthly
- number of the latest of software improvements
- 400+ pages, very easy to use \$12.97 per unit
- full of new software information

1-800-867-0826 (1-800-867-0826)

c/o: Electronic Personal Software

700 Computer Road N. Houston, TX 77074

Network (214) 677-0886 Fax (214) 677-0883

Network (214) 677-0886 Fax (214) 677-0883

COMPUTER PAPER Classified Rates

Classified ads • \$7/line reaches 50,000 plus readers • \$7 minimum
DEADLINE: 15th of each month or first working day following the 15th.

- Please specify which edition classified is to run in:**
 - ☐ B.C.
 - ☐ ALBERTA
 - ☐ MANITOBA
- How many issues do you want it to run for:**
 - 1st 14-20
 - 2nd 14-20
 - 3rd 14-20
 - 4th 14-20
 - 5th 14-20
 - 6th 14-20
 - 7th 14-20
 - 8th 14-20
 - 9th 14-20
 - 10th 14-20
 - 11th 14-20
 - 12th 14-20
 - 13th 14-20
 - 14th 14-20
 - 15th 14-20
 - 16th 14-20
 - 17th 14-20
 - 18th 14-20
 - 19th 14-20
 - 20th 14-20
 - 21st 14-20
 - 22nd 14-20
 - 23rd 14-20
 - 24th 14-20
 - 25th 14-20
 - 26th 14-20
 - 27th 14-20
 - 28th 14-20
 - 29th 14-20
 - 30th 14-20
 - 31st 14-20
 - 32nd 14-20
 - 33rd 14-20
 - 34th 14-20
 - 35th 14-20
 - 36th 14-20
 - 37th 14-20
 - 38th 14-20
 - 39th 14-20
 - 40th 14-20
 - 41st 14-20
 - 42nd 14-20
 - 43rd 14-20
 - 44th 14-20
 - 45th 14-20
 - 46th 14-20
 - 47th 14-20
 - 48th 14-20
 - 49th 14-20
 - 50th 14-20
 - 51st 14-20
 - 52nd 14-20
 - 53rd 14-20
 - 54th 14-20
 - 55th 14-20
 - 56th 14-20
 - 57th 14-20
 - 58th 14-20
 - 59th 14-20
 - 60th 14-20
 - 61st 14-20
 - 62nd 14-20
 - 63rd 14-20
 - 64th 14-20
 - 65th 14-20
 - 66th 14-20
 - 67th 14-20
 - 68th 14-20
 - 69th 14-20
 - 70th 14-20
 - 71st 14-20
 - 72nd 14-20
 - 73rd 14-20
 - 74th 14-20
 - 75th 14-20
 - 76th 14-20
 - 77th 14-20
 - 78th 14-20
 - 79th 14-20
 - 80th 14-20
 - 81st 14-20
 - 82nd 14-20
 - 83rd 14-20
 - 84th 14-20
 - 85th 14-20
 - 86th 14-20
 - 87th 14-20
 - 88th 14-20
 - 89th 14-20
 - 90th 14-20
 - 91st 14-20
 - 92nd 14-20
 - 93rd 14-20
 - 94th 14-20
 - 95th 14-20
 - 96th 14-20
 - 97th 14-20
 - 98th 14-20
 - 99th 14-20
 - 100th 14-20
- Select the section you would like it to run in:**
 - ☐ BBS
 - ☐ HARDWARE
 - ☐ SERVICES
 - ☐ SOFTWARE
 - ☐ PERIPHERALS
 - ☐ EMPLOYMENT

Line		
1		\$7
2		\$14
3		\$21
4		\$28
5		\$35

Method of Payment

☐ Cheque

☐ Money Order

☐ Visa

☐ Mastercard

\$ off/line (\$5 characters per line)

Multiply by \$20 in

Multiply by \$10 in

Multiply by \$5 in

Multiply by \$2 in

Multiply by \$1 in

Multiply by \$0.50 in

Multiply by \$0.25 in

Multiply by \$0.10 in

Multiply by \$0.05 in

Multiply by \$0.02 in

Multiply by \$0.01 in

Subtotal

AMT GST (7%)

TOTAL

Card Number

Expiry Date

Name

Address

City/Prov./C

Phone

Send Completed form with Payment to:
The Computer Paper, #8, 3661 West 4th Ave., Vancouver, B.C. V6R 1P2
or for credit card orders, fax to (604) 732-4260

Image Scanning

Envigant Color & Grayscale scanning
Digitize & format into VGA Super VGA
File conversion to TIFF, EPS, GIF, PCL, TGA,
etc. \$12 per image (volume discounts)

736-9624

ALSOFT SYSTEM ARTS INC. 261-5179

**SALES • SUPPORT
CUSTOMIZATION**

**Get the top rated
accounting system
working for you.**

**NOW
VERSION V.0**

WINDOWS SHAREWARE

\$6/disk

Games, screen savers, utilities,
etc., software & more!

ComputerSmiths
3701 St. Lawrence
Vancouver, B.C. V6L 2C1
734-5747

**TRY
SHAREWARE**

Utilities • Education • Games,
Business & Accounting,
Games & etc.

NEW! 1/2 PRICE! 100% GUARANTEE!

**As excellent prep. as any
program before you
actually buy it.**

Available, B.C. only for Browsers
• Computer Software • Personal Software
• Computer Hardware • Video/DVD
• Games Publishing
• Microsoft Computer Publishing

ComputerSmiths
3701 St. Lawrence
Vancouver, B.C. V6L 2C1
734-5747

COMPUTER TROUBLES?

**APPLY & WIN COMPACTIBLE SPECIALISTS
FACTORY TRAINED TECHNICIANS**

WE REPAIR YOUR BEST SOFTWARE PERFORM.
We are a full service organization involved in
all facets of the computer industry since 1975.

• WE ARE INFORMABLE
• WE ARE FAST
• WE ARE EXPERTS
• WE DO IT RIGHT

"YOUR PLACE OR OURS"

MINITRONICS
HS-TECH SERVICES
2086 KINGSWAY
AT YVRETTA BC, VANCOUVER
872-5814

**THE BEST & MOST POPULAR
IBM COMPATIBLE
P/D & SHAREWARE
SOFTWARE**

**FREE!
Catalogue
on Disk**

**ALSO APPROVED FOR
BRIEF OR PHONE**

Northlight Software

P.O. Box 2078, 1130-880 Avenue,
Calgary, B.C. T2C 5G1 • Phone (403) 264-1115

Discount Systems

285-1215 2403-5485
304-1670 2779-5330
306-226-5546 51230
403-203-2500 3246

NCS Discount Computers
P.O. 271-3580
VISA Fax: 221-5081

**Doug & Colleen's
Near Ideas Market Inc.**

**MS-DOS
SHAREWARE**

1270 Kingsway (at Clark)
Vancouver, B.C. V6V 0E2

872-1022

BUY THREE GET ONE FREE

OVER FIFTY NEW TITLES!

**TECHNICAL CONSULTANTS
AUTOCAD
MICROSTATION**

Grading & Survey Systems
Customized Training Courses
Autodesk & Bentley Training
Bentley & MicroStation
Bentley & MicroStation
Bentley & MicroStation

400-766-6666, B.C. (604) 436-2380

TRANSDATA PORTABLE PC

Most Usable Portables

16" high-contrast, gas plasma
286/333 SCORPION, 286/486
1.44MB, 1.25MB & 30MB disks
Modular design, expandability
Only 20 lbs. Special \$9999

Software, Consultants, Engineers,
Educators, Professionals, Accountants

COL COMPUTERS
Tel (604) 586-1134 Fax (604) 583-6535

